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ABSTRACT

The theme of the 2000 issue of Pedagogy Journal is finding a "sense of place" within the higher education community. Articles contained discuss this issue as it pertains to different aspects of the postsecondary system. These articles include: (1) "The Role of Left-Brain/Right-Brain Learning Theory in Personal Computer Courses" (Jack Wakelin); (2) "Leaving the Scullery" (Kathy Solomon); (3) "Development of the Love of Writing and Improvement of Assessment Writing Prompt Scores" (Larry Carle); (4) "Using Group Learning Cycle Methods in Science Labs" (Doyle V. David, Martin Lackenbucker, and Gernot Psota); (5) "The Changing Blackboard in Physics?" (Janice Kaliski); (6) "System English Articulation" (Nancy Marashio); (7) "Starting with the Big Picture" (Sandra Cole); (8) "Psychology Overview" (Sandi Hennig); (9) "Take-Home Discussion Papers: An Effective Alternative to Traditional Testing Techniques" (Philip Eller); (10) "Examining the Components of Problem Based Service Learning" (Joe Perron); (11) "Toward a Better Society" (Denise S. St. Cyr); (12) "The Adjunct Professor is an Academic Citizen" (Mary N. Boyle); (13) "A Process Template for Designing a Course" (Paul Marashio); and (14) "Heuristic Research" (Nancy Roy). (EMH)

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Volume 7, 2000

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"Education is the kindling of a flame, not the filling of a vessel."

Socrates

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New Hampshire Community Technical Colleges

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PREFACE

Paul Marashio
Pedagogy Committee Chair

The "Pedagogy Journal" forms our Sense of Place. Through the "Pedagogy Journal" we are offered a forum to share exciting pedagogy with each other. It is this sharing that transforms us into a system wide academic community whose pursuit is teaching excellence.

In our other Sense of Place, the classrooms, we are transforming this world into learning communities where students and instructors are engaged intellectually. They too are sharing their newfound knowledge with each other, helping each other, teaching each other, learning from each other. Both teacher and learner are indistinguishably entwined. An outgrowth of this intellectual interaction is each learner finding their Sense of Place.

Even the lone article discussing adjunct faculty discusses the urgency of finding a Sense of Place for adjuncts who are contracted to teach 1, 2, or 3 courses. Too often they feel disassociated, disconnected, alienated from the academic community. The author of this article proposes ways adjuncts can find Sense of Place and feel a part of and commitment to our higher education community.

A Sense of Place provides comfort, collegiality, cooperation, interaction, dialogue, discourse, warmth, and togetherness to all who inhabit our various learning communities. As Pedagogy researchers and implementers we foster, encourage, sustain this Sense of Place within our seven colleges. To continue the growth and development of our Sense of Place, share your pedagogy research in the form of an article for our next volume of the "Pedagogy Journal".

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THE ROLE OF LEFT-BRAIN/RIGHT-BRAIN LEARNING THEORY IN PERSONAL COMPUTER COURSES

Jack Wakelin

Computers have long been considered so linear and left-brained that the title of this article may appear to be a contradiction in terms. However I have found that the Left-Brain/Right-Brain Learning Theory that has permeated the educational establishment over the last 30 years is very helpful for students taking introductory computer courses. The theory is also helpful in many situations in advanced computer courses such as Web Design. This paper will deal primarily with introductory courses, however.

I began to work with the Left-Brain/Right-Brain Learning Theory in the late 1980s. At that time I worked as a facilitator for a management training firm.

We used the theory in workshop design for training corporate clients and found it very helpful. The mix of both left-brain and right-brain activities made the workshops more interesting and effective for our clients.

Extensive research has developed the theory over the last 30 years and it is still evolving. An excellent contemporary work on the subject is The Right Mind by Robert Ornstein (1997). In this book, Ornstein states that he has actually changed his position on how the brain works when compared to his views in his earlier book, The Psychology of Consciousness, (published in the mid 70's) and he documents the research that has led him to his current conclusions.

While some of the early educational applications of this theory may be suspect, Robert Ornstein's book allows us to draw some general conclusions:

- The brain is organized into two distinct hemispheres (Left and Right) that develop differently and do profoundly different things.
- Most traditional learning (the three R's) and language learning develop in the left brain.
- The ability to understand concepts and the context of things as well as creativity develop in the right brain.

- This organization is not absolute and different individuals' brain activity may be organized somewhat differently but the general conclusions listed here hold for the majority of us.
- Women are *more flexible* in the way their brains are organized (i.e. language and creativity take place to a larger degree in both sides of the brain in women while they are more localized in men).
- The importance of language to humans creates a condition of left brain dominance and results in a majority of right handed people (about 90%).
- The two hemispheres of the brain work together when learning new things and/or problem solving.

Earlier use of this theory tended to look at learning as taking place in either one or the other of the hemispheres. This situation resulted in stressing either left-brain or right-brain teaching activities at a given time. In fact both the left and right hemispheres of the brain must be as heavily engaged as possible in the learning environment if the most effective learning ***and understanding*** is to occur.

In the late 80's and early 90's I did not think of applying any of this learning theory to the PC courses I was teaching (I was doing some very linear thinking myself). I assumed that there was nothing as linear and left brained as the PC with its command driven operating system which required new users to learn at least the basic language of DOS. But the way a PC works had changed dramatically! I had just failed to realize the full impact that this change could have in my method of teaching. By 1996 something happened for me to finally use my right brain to connect the evolution of the Graphical User Interface (the Apple Mac and Windows operating systems) with Right-Brain activity.

I was finally able to make this connection in an unusual way. As you may know, most introductory computer courses present at least a brief history of the development of the Personal Computer. In early 1996 I happened to see a three part PBS Television Series called "The Triumph of the Nerds" that presented the major events in the development of PC hardware and software. This series presented, in fact, a very right-brain method of illustrating the first 20 years of PC history (from its inception in 1975 through the introduction of Windows 95 in 1995). Clearly the PBS series would be more interesting for my students than my previous method. My earlier method was the more conventional lecture augmented with a static PC history "Time Line" that many PC textbook publishers include in their introductory text.

I started using the series in mid 1996 and it was a hit with my students. They were pleasantly surprised to be watching TV tapes in a (usually "left brained") computer course. I watched each of its three volumes at least 10 or 12 times and discussed them with my students for about two years before "it" happened. I think "it" took so long because I'm sometimes a little slow on the uptake when a BFO (Blinding Flash of the Obvious) is right in front of me. The first thing that I finally realized was that the PBS series illustrated that there were many examples of both left and right-brained behaviors in the development of PC hardware and software.

Secondly, and more interestingly I think, the series documents that the PC itself has undergone a metamorphosis from its beginnings as a purely left-brained tool (that clearly only very "left brained" thinkers could be comfortable using) to an instrument that can be operated with visual cues (icons) and a "point and click" method (mouse). The change from a command language "user interface" to a *Graphical* User Interface (GUI) was made possible by faster microprocessors, more available memory and some very right brained thinking by the head of Apple, Steve Jobs.

The Apple Mac was introduced in 1984 and was the first commercially available graphical user interface. It was not an instant success. Steve Jobs was so busy using his right brain to make the MAC "insanely great" that he ignored some important left brained details. These forgotten details were in the form of missing application software such as the popular IBM compatible Lotus 1-2-3 spreadsheet and a fully featured word processor such as WordPerfect. The Mac was released with only a nice drawing package (right brained) called MacPaint and a limited word processor called MacWrite. Initial sales were very disappointing due to this lack of software. That was not the most important fallout from this omission however. Steve Jobs left Apple due to this "minor" left brained omission and some who worked there said that Apple had lost its very soul. He went on to start a computer animation company and produced the movie, "**Toy Story**". I cannot think of a more right brained environment to retreat to than computer animation and Steve has been very successful there.

After a year or so when more application software was developed (such as Word and Excel), the MAC and its GUI proved to be far easier and more intuitive to use than DOS. Sales of the MAC skyrocketed. Unfortunately, for most of us teaching at the college level, the IBM PCs and

their compatibles had to continue to use DOS until 1990. 1990 was the year when Windows 3.0 was released and it was sufficiently usable to finally signal a practical end to the long reign of DOS.

Since that time, the vast majority of all PCs are much less left brained to use because of the Mac and Windows GUI operating environments. However it took me until 1997 (with those repeated viewings and class discussions of "The Triumph of the Nerds") to "get it". I had finally realized what Steve Jobs knew in 1982. The GUI operating systems and their newly designed applications had incorporated some very significant right-brained features. All I had to do was identify these features to my students and determine a way to make them an important part in teaching my PC courses.

The table following is a listing of right-brain oriented features of the Office 97/2000 applications most commonly taught and some suggestions for teaching activities to use these features. The list is not intended to be exclusive and some textbooks have some of these types of exercises that can be used. However I have usually had to design some of my own exercises so that my students could use these features.

"Right Brain" Features and Teaching Techniques Table
Microsoft Office 97/2000

Application	Feature	Teaching Technique
MS Word	Import Graphics	Add graphics to title pages and text.
	Word Art	Create Flyers & Invitations.
	Tables	Use Table AutoFormat.
	Drawing Tools	Create shapes, logos, etc
	Fonts/Color	Use interesting and colorful fonts.
Internet	Research	Find course related sites
	Career Research	Find job openings/qualifications
PowerPoint	Animation	Use animated clip art/video
	Sound	Use sound with slides
	Narration	Add narration to presentations
Excel	Chart Variations	Use different types of charts
	AutoFormat	Use different formats as in Word
	Import Graphics	Add graphics as in Word
General	Photographs	Scan photos to insert into Word, PPT, & Excel

Another effective way to stimulate right brain activity is to create integration exercises where an Excel chart (or spreadsheet) is placed on a PowerPoint slide. In a similar manner spreadsheets can be entered into reports written in Word. Integration exercises are by definition right brain exercises. They are especially useful as they expose the student to unusual ways of using features that are "outside the box" in which they were learned. As with all types of right brain activities, they contribute to a deeper understanding of the individual features of the applications. Perhaps most importantly, these exercises demonstrate the power of a software suite, such as Office 97/00, to integrate its features across its component parts.

Many textbooks also provide some integration exercises but I have found that local integration projects work well. One such project requires the student to create an Excel spreadsheet using data about eight of the ten counties of New Hampshire. The student is then required to create a chart with the information and place it on a PowerPoint slide. Finally the student is asked to determine the other two counties that are missing and try to determine why I did not include them in the chart *without leaving their seats*. They sometimes take a few minutes to realize that they can use the Internet to find the information that they need. Too many students still do not immediately think of using the power of the Internet to solve many types of problems. Locally designed integration exercises provide more right brain practice in finding answers that do not lie along the usual "straight and narrow" track.

Additionally anything that you can do to give Excel and PowerPoint a context of when and how they may be used really helps. Textbooks have had a tendency, especially with Excel, to just present various features with very little explanation as to when they are appropriate to use. Projects in the form of personal exercises are much better for supplying context. I use an exercise for computer majors to create a PowerPoint presentation about their chosen career. They must use job opportunity web sites, the NHTI web site and other internet resources to create a presentation that requires them to think of what they must do to reach their career goals. Students are given sufficient time to create a detailed presentation and many of them do. Several of them have told me that this was the first time they had thought about this subject in this "integrated" way and it had an impact on their course of future studies.

Almost any exercise that has an "open" format (where the students determine the outcome of how they use the specific features of Office 97/00) will lead to some astounding results. Open exercises always enhance understanding of the use of these features, because the student must think about how and in what order they will be used. Remember that exercises using the Internet can and should be used in almost any class. Any exercise using this graphic rich environment and Internet search skills can hardly be called left brained.

We see more and more "non-technical instructors" and students using PC applications in other than traditional PC courses. As an example, student presentations created using PowerPoint and delivered in a "traditional" course generate far more student and instructor interest than even the best prepared static presentation. Students who produce a "knockout" presentation in Communications 101 and get rave reviews from their peers today will produce a presentation of similar impact at their first presentation on the job tomorrow. This is clearly an example of a right-brained application of GUI features that all introductory PC course instructors desire from their students! The wider use of "our" technology in traditional classrooms sometimes stretches computer resources. Both technical and non-technical instructors as well as media specialists must anticipate this most encouraging "problem" and coordinate the use of laptops, projectors and lab resources so that students have the technology available when they need it. We cannot encourage students to seek right brain uses of technology and then make it difficult for them to use it in *any* later courses whether they are writing, communications, accounting or marketing to name a few.

I hope that I have provided some ideas that you can use if you teach PC courses or use them to supplement your courses. For your information I have attached a two-page handout that I give to my students at the beginning of each term. As we discuss the handout, students learn (especially the older ones) that you no longer need to be a "Nerd" to use and appreciate the PC.

In one last reference to Ornstein's research, *right-brained skills can only be used if the necessary left brained foundation skills are present.* To this end, I often I tell my students (when they struggle with the mysteries of Windows Explorer's file management tasks), "It does little good to write the "Great American Novel" if you can't find Chapter 12.

As a final thought, the PC may be such a powerful tool simply because it assists us in using both hemispheres of our brain at the same time.

HANDOUT
PCs and How We Learn

The Left /Right Brain Model has been very useful in explaining how we learn, think and work. Generally left brain behaviors are sequential and analytical while right-brain behaviors are more creative and artistic. (A ,more complete description of these behaviors appears on the next page.)

This model suggests that we learn best when we engage in both left and right brain activities. But how can that be done in a computer applications class? On the surface, the PC and Office 97/00 appear to provide overwhelmingly left brain activities!!! Certainly DOS, programming rules and databases (lists) reinforce that idea. But today's PCs have elements that appeal to the right brain when we consider Windows with its icons, Excel with its charts, PowerPoint with its various colors and layouts, and of course Word upon which you can write the "Great American Novel". Perhaps you will concede that, once mastered, the PC can help you with both left and right brain activities from accounting to graphic art but how about the activities found computer courses themselves?

Some of the skill building exercises in your workbook are definitely sequential. But not all exercises are exclusively left brain in orientation as they include integration and Internet projects too. The PC theory discussion is balanced in nature providing both left and right brain learning opportunities and concepts. An example of an explicitly right brain activity, is the PBS series "Triumph of the Nerds" which is definitely a very creative treatment of the history of the PC from 1975 through 1995.

Other right brain activities include exam questions that are essay in nature dealing with the theory and uses of PCs, (not simply the "button pushing" aspect of the applications). Project work of your choice, which by definition will fit your style of learning, can range from left-brain activities such as spreadsheets to non-linear activities such as the design of presentations or worldwide research on many subjects over the Internet.

We will also discuss the social and economic impact of the PC and the Internet as we move further into the Information Age. This discussion will center on PC current events reported in the conventional media and over the Internet. Further, it will range from topics such as First Amendment issues to government regulation of Microsoft's activities. Attention will focus on our being prepared to expand our thinking to take advantage of the rapid growth of the Internet as it increases our ability to improve our knowledge, do our jobs and be more informed consumers.

Therefore this PC applications course is structured to provide a wide range of activities (from both the left and right brain perspectives) to allow participants to maximize their learning opportunities. Specific types of left and right brain behaviors relating to the activities of this course are found below.

Left / Right Behaviors and this Course

Left Brain Behaviors	***Class Activities***
Processing Information Sequentially	Windows 95/98 and Office 97/00 Labs
Evaluating Performance To a Standard	Testing and Lab Work
Systematic Problem Solving	Excel Business Problems
Remembering Verbal Qualities	PC/Internet Terminology
Right Brain Behaviors	***Class Activities***
Visual and Kinesthetic Instruction	"Triumph of the Nerds", Windows 95/98 Operating Environment, the Internet, PowerPoint & the use of graphics/charts
Demonstrational Instructions	Software Demonstrations
Learning Through Exploration	Internet Searching and PC Projects
Open-Ended Assignments	Discussions of the PC, essay questions, PC and Internet Projects

1. Ornstein R., The Right Mind, (1997) Harcourt Brace & Company, San Diego CA

2. Cringely, R., Triumph of The Nerds, (1996) Oregon Public Broadcasting and John Gau Productions, Ambrose Video Publishing, NY, NY

Note: The Triumph of The Nerds may be ordered from the PBS web site at (www.pbs.org).

LEAVING THE SCULLERY

Kathy Solomon

Putting down the wooden paddle,
she looks once more
to the ruddyfire: that it burns steadily
under the iron pot of gruel.
That the water becomes rich
with the beautiful swollen grains
and fibers of earth, that the coarse salt
flung from her open hand bursts
on the surface of the stew.
That the high window
is ajar for linden air
to enter.

Pale hands feeling the way
up the stone stairwell like blossoms
opening along a tangled vine,
she cracks the wooden door and steps out
into black, the black
loam, black shadows of trees, thin
as she breathes in that moonless air,
as she walks through it, meteors
flash like grains of salt, and stars
appear, their light thickening
the night.

First appeared in Ad Hoc Monadnock '95
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DEVELOPMENT OF THE LOVE OF WRITING AND IMPROVEMENT OF ASSESSMENT WRITING PROMPT SCORES

A Suggestion on an Ice-Covered Day, 2/14/00

Larry Carle

We have teenagers who have gone from cart wheels to car wheels as they go through town.* Of course, their peripatetic movements (though they might suggest they succeeded in driver's education classes) do not happily hint that they are successfully bringing with them their lessons in English, from the number of "Novices" and their display of less than average overall literacy outside of school. They drive often, but they much less often and much less successfully read and write.

All this might or might not be true, but some facts definitely are to be found in the following:

Senior high school teachers have been asked to identify those potentially "Novice" students before they show up in their junior year of high school.

As a result, we have decided possibly to come up with a test to predict who those students will be; so (it appears to me in my ignorance and confusion) we will possibly have a test to predict the results of a later test.

We now give exams at the end of each of four quarters, totaling the equivalent of 16 days of school by old-fashioned scheduling standards.

We should add to this the realization that the New Hampshire Assessment Test takes up a week or more of half-day testing of the sophomores, time equivalent to another five or six days of real school days. (I claim ignorance as to how many other days or half-days [times two for block scheduling] sophomores and other age groups give up to testing.)

After reflection upon the above, we should, in particular, take note of the students:

The STUDENTS only sometimes respond to the NH Assessment Test with the enthusiasm that the school and community wants them to have.

* A special thanks goes to Joni Mitchell for this one.

The STUDENTS see little if any connection between their having a real interest in learning and the supposed teaching and learning that occurs because of the test.

The STUDENTS see the test as something done for the school and community, not as something truly done for the Students.

Admittedly, though the effects of the above influences upon teachers and students appear somewhat arguable, it still seems to me that also included among the above is very frequent testing that is frequently stressful for the school; furthermore, administrators would know better than I whether or not any significant changes have consistently occurred in a meaningful way. (I have assumed not, for we keep hammering on NHEIAP [New Hampshire Educational Improvement and Assessment Program] test items and issues in faculty meetings and work days year after year.)

As a result, I suggest only what I think I know, not including all the various requirements and needs of the assessment testing. Let's take a look at doing the following in the future for development of writing and improvement of assessment writing prompt scores:

Let's document how students write when they enter high school.

Let's determine what has changed and what has stayed the same close to the time period that the same group actually has to take the assessment test in their sophomore year.

Let's develop a writing sample *to be done at the start of the ninth grade year* for the faculty to assess writing strengths and needs while not using the process to grade or label students.

Let's include writing sample choices like

- "Write about a person you remember. Tell why you remember him or her."
- "Write about a time that left an impression on you, showing what the impression is and why you have it."
- "Write about a favorite object and why it has special meaning for you."
- "Write about any topic that matters to you in any way you choose to do so."

Let's number each student's response and anonymously publish his or her writing in the Argus Champion.*

* Local Weekly Newspaper

Let's publicly include in the process the student's own answers to two important questions: "What do you think are your strengths as a writer?" and "What do you think are your needs as a writer?"

Let's publicly include a writing teacher's analysis of each writer's sample response, (whether if by rubric or individually written analysis, or both, it can be done fairly easily, really). *

Let's repeat the process at the necessary time to do a similar and necessary evaluation before each student takes his or her NH Assessment Test. (And let's have the student decide if his or her needs, according to the boundaries established by the initially answered questions as to his or her needs, were met. Each student should be able to easily do this, as should the public, the assessors, and the teachers, by looking back at his or her ninth grade sample in relation to the tenth grade sample.)

The great strength of this process should come from the student's work having been presented in whole form to a real audience. This will avoid the disconnect between process and results and the separation of a writer from his or her real needs.

That is, an assessment test score succeeds in separating the student from reality because it presents the results (scores) as the reality, not the actual work or ability to succeed with an audience. Simply said, its disconnect means that it *tells* the public test scores but *does not* concretely *show* individual work in its wholeness to an audience that has the time to respond before the end result is accomplished.

A positive and truly meaningful result should come from the public, the student, and the school as all have a chance to compare what the writer did at an earlier time to what he or she did at a later time.

Perhaps this suggests that we should concern ourselves more with development and growth and less with test results; perhaps the highest scores do not always matter. Perhaps the student who should receive the greatest recognition and have the greatest feeling of satisfaction is the one who has changed the most, the one who has publicly grown and can see it for himself or herself, not the one who has successfully but privately let a test on a table do the measuring.

*(I personally could handle at the appropriate time about twenty of these samples in any week. Anyhow, there would be time to look at a class of one hundred or so students because this process would go on for months.)

For that matter, the public, too, could see the process going on, deciding for itself whether or not the student met his or her needs and whether or not they would have wanted him or her to have gone after *those* changes (and kept the same what was already successful) or other ones.

Additionally, the student who attempts the process will inform both himself or herself and the faculty as to the following benefits:

- The student will or will not be able to display an ability to comprehend and to use ideas that will allow him or her to analyze writing. That is, the student will become the expert. (It has amazed me that our students have few ideas available to them about why good writing is acceptable and needs leaving alone and why bad writing is unacceptable and needs changing.)
- The student will learn (and unlearn what came before) that he or she can find, use, and put trust in other sources for figuring out how writing succeeds, what makes writing significant, and what makes writing important, as compared to his or her past reliance upon only one expert at a time or a standardized test or two at various other times.

Despite the possible questioning of "Suggestions on an Ice-Covered Day" as to the veracity of any or most of its parts, that its center is the STUDENTS can not be doubted. In the particular, these are high school students — students who have no choice other than to take the NHEIAP test in their tenth grade years.

Other questioning should occur, however, as to the meaning of these students' test results. It is more than possible that to a significant extent their unwanted Novice scores result as much from the expedient but ineffectual Band-Aids certain school districts throw upon the academic sore spots they have presumed to know how to remediate as much as they do from any other factor affecting a student before his or her testing.

As has been brought forth, the writing prompt section of the NHEIAP is of particular concern for one school district. Rather than focusing clearly upon the students, rather than appreciating what the writing process is and emphasizing it, and rather than having a clue about how to resolve the disconnect between process and results and the separation of a writer from his or her real needs, the district's educators and their leaders have been expending much time and energy on distress relieving activities. As a result, many high school teachers will have spent their frequent afternoon faculty meetings during the past several years

deliberating how to raise assessment test scores for a significant number of their clientel who need to move above the Novice (lowest) Level.

BUT because some of the responses to the NHEIAP have come more from political astuteness than they have come from profound expertise with the writing process, and because some other suggestions have stressed raising test scores rather than emphasized creating students who actually love to write, a change in theory and practice is needed.

Students don't need a NHEIAP test to cause them to produce better writing, nor do they need a pretest to determine how they will do on the NHEIAP. They do not need testing for testing's sake, but they need to learn to love the writing process itself. If they DO learn to love writing, if they actually DO become writers, most of the rest, including raised NHEIAP scores, will take care of itself.

The core, the center, and the focus of attention for "Suggestion of an Ice-Covered Day" is the student. High schools should avoid testing for the test's sake, the school's own sake, and the town's sake. Instead, let their teaching focus upon their students and the encouragement of their students' love for the writing process.

USING GROUP LEARNING CYCLE METHODS IN SCIENCE LABS

Doyle V. Davis, Martin Lackenbucher, and Gernot Psota

Pedagogical research in recent years has shown the advantage of using active-learner teaching strategies instead of the standard lecture format to help improve individual student comprehension and knowledge retention. This paper addresses the use of such strategies in science labs where students often work with a partner and collect data as a team. This paper is the outgrowth of an unusual experience the author(Davis) had as the "graduate advisor" of two visiting physics teachers from the University of Vienna who were part of a foreign exchange program funded by the U.S. Department of Education (FIPSE) and the European Commission which involved five colleges/universities in the United States and five universities in Europe. The U.S. schools were the University of Nebraska at Lincoln, Kansas State University, Norfolk State University, Kalamazoo College, and NHCTC-Berlin. The European schools were the University of Amsterdam, the University of Athens, the University of Jyvaskylla (Finland), the University of Kiel (Germany), and the University of Vienna.

Using state-of-the-art digital technologies - the Internet, the World Wide Web and desktop video - faculty and students from these schools are involved in the production of CD-ROM and web-based learning activities based on the science, technology and cultural aspects of the bicycle. Individual projects under current development range from a bicycle designed for the handicapped to investigating the safety of different designs of bike helmets to developing an understanding of the way bikes are used in different localities. Each student selected spends three months abroad during the project. They work with fellow team members studying and testing bicycle design or other projects, including the cultural aspects of bicycles. An overview of this project can be found on the author's (Davis) server at http://webphysics.tec.nh.us/bikeproject/bikeproject.html

In the Fall of 1999, Martin Lackenbucher and Gernot Psota were both working on their Masters degrees at the University of Vienna. Their advisor, Dr. Helmut Kuhnelt, is a well-known Austrian physics educator and has trained many outstanding secondary and post-

secondary physics teachers in Europe . As part of the foreign exchange project described above, he encouraged them to travel to the United States not only to assist in the bike project but perhaps more importantly to observe American physics instructors in action. Much to the delight of the author (Davis), Martin and Gernot chose NHCTC-Berlin as their place of study for three months.

Arriving in the middle of October, my visiting "graduate students" felt right at home in the White Mountains. Although not as tall as the mountains of the Austrian Alps, the Whites provided a nice geographical connection to their homeland . Immediately they began to visit the author's classes and observe his methods of instruction. They were struck by the informality of the student-teacher interaction at NHCTC-Berlin when compared to the more rigid and formal modes of instruction at major European universities. We had many interesting discussions about teaching and testing methods and we learned much from each other. They were particularly shocked to discover that the author let his students use their books on physics exams . The idea of a student actually being able to have a week to take an exam home and work on it was unheard of in the academic world of the University of Vienna. They were also very impressed with the physics labs. As science teachers in two-year colleges, we often think that our labs are poorly equipped and completely out of date. To the surprise of the author (Davis), Martin and Gernot informed him that his labs were as well-equipped and in some cases better than their own first-year physics labs at the University of Vienna – particularly in the area of microcomputer based laboratories.

They spent a few weeks gaining familiarity with equipment in the NHCTC-physics labs which they did not have at their home, institution. With their warm and friendly personalities, it did not take long for them to integrate nicely into my Fall semester physics class. They were given complete freedom to ask questions in class and make comments as though they were my students. At first this was difficult for them to do, but they gradually became true members of the class . They enjoyed helping the author to set up weekly labs and quickly became informal resource agents for the students. During the labs, they would work with individual student teams (usually two or three students per team) to help if the team had a problem. (The author felt as if he had died and gone to heaven!) At the end of each day, we would discuss what went well and what things we could have improved.

The author felt the time had now come for them to develop their own experiment which would become part of the bicycle foreign exchange

project. We talked about a number of experiments and settled on one related to the rotation of wheels. We wanted an experiment which would encourage students to work in teams, encourage writing, and oral presentation. The *Group Learning Cycle (GLC)*approach seemed the ideal pedagogical choice. GLC is similar to any other type of "reverse" learning cycle except more students are involved in the learning activity. A typical learning cycle begins with a theoretical discussion of a particular topic. The topic is defined, equations are presented and/or derived. Then students are given problems to solve which are related to the concept. This is sometimes called the application phase. Finally students explore a new phenomenon and try to decide if the theory which they have learned can be applied to what they observe . *This "exploration" or "observation" phase is usually the last phase in a traditional learning cycle and usually is presented in the form of a lab activity after and only after the theory has been presented in class. GLC Theory uses the reverse procedure.*

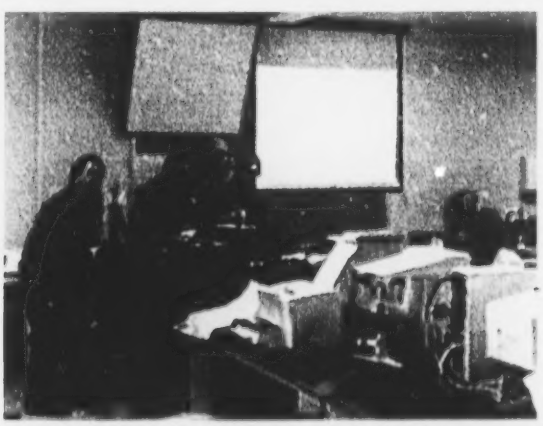
First students "explore" or "observe" the behavior of some phenomenon. This exploration occurs before they have discussed the phenomenon in the lecture. In the case of the experiment designed by Martin and Gernot, students observe two wheels roll down a ramp. One wheel is a solid disk made of wood. The other is a thin cylindrical hoop made of iron. When students simultaneously release the two wheels at the same point on the ramp they discover that one of the wheels always beats the other down the ramp. They are asked to record what they observe. Working in teams of four, they write down their observations. They are then asked to go off and discuss their observations and develop a written report which includes their own "theory" as to why one wheel always beats the other. They are told nothing about the objects i.e. their size or mass. What they choose to measure is up to them.

The next step in the GLC cycle is the application phase. Here students in teams of four analyze other rotating systems. They "apply" their theory to other rotating systems. One group videotapes the two wheels as they roll down the ramp and analyzes the motion by digitizing the video frame by frame. From these digitized frames they measure the acceleration of the two wheels. Another team studies the acceleration of a rod with two masses attached to the end of the rod. A falling weight causes the rod to spin faster and faster (accelerate) the longer the weight falls. The location of the brass weights from the center of the rod can be changed so

that students can explore the effect of "mass distribution" on the angular acceleration of the rod. Another team takes the data from the other two teams and develops a spreadsheet to search for mathematical relationships between the speed of rotation and the mass distribution of the wheels and the rod. Patterns begin to emerge which support or refute student theories.

Teams are given one week to complete their individual experiments and to prepare a written lab report of their findings. Each team must choose someone to present the results of their findings to the rest of the class. This presentation begins at the beginning of the next weekly lecture class. This learning approach encourages active participation, critical thinking, and team work. The team must produce the outline which will be used by the "presenter". (This outline or written report is saved on disk and transferred to the instructor's computer. This computer is used by all teams in the presentation and is connected to a projector with a built-in light source.)

During the presentations, the class is encouraged to pose questions to the team members who are presenting. Students are graded on the quality of their individual written presentations and a "group grade" on their oral presentation. (They have already had experience using Microsoft Word and Excel in preparing earlier lab reports and so are aware of issues such as spelling, sentence structure, data presentation and analysis.) It should be mentioned that this was, for many of these students, their first experience at presenting the results of a project in front of an audience including faculty and students.



The GLC cycle for this experiment concludes by presenting the theory of rotating objects. Working as a team, the authors (Davis, Lackenbucher,

and Psota) develop the theory and introduce the concept of *"moment of inertia"*. The necessary formulas to explain why one wheel always beats the other. Unlike the traditional learning approach where theory is presented first and then the students do a lab, GLC takes the opposite approach. *By doing the lab first, a "hook" or "experience" now exists in their mind upon which they can hang the concept and related theory.*

Using the *GLC* in teaching science labs is not for the timid science teacher. It requires taking risks and giving up control but the rewards can be extraordinary. Students feel they have an "ownership" of the experiment and a better understanding of the concepts they have studied. After the students had seen the wheels released for the first time, the authors asked the students the question "Why does this wheel always beat the other?", students made comments such as "Because it's heavier." or "One is bigger than the other" The GLC approach to teaching lets them discover through their measurements that both disks have the same mass and the same diameter. Using the more traditional approach, the authors believe that students would not appreciate the importance of the mass distribution i.e. moment of inertia of the two objects about their axis of rotation.

Oh, by the way. Which of the wheels do you think always beats the other – the solid wooden disk or the iron hoop? Visit the websites we created for this lesson and paper at the following locations:

http://webphysics.tec.nh.us/bikeproject/lessons/moments/coach.htm
http://webphysics.tec.nh.us/bikeproject/lessons/moments/video.htm

From left to right in the photo above: Gernot Psota, Doyle Davis, and Martin Lackenbucher. Note: There are still opportunities for NHCTC students at all seven campus locations to participate in the bicycle project described in this paper during the 2000/2001 academic year. The author encourages students from any major to apply by contacting him at ddavis@tec.nh.us

THE CHANGING BLACKBOARD IN PHYSICS?

Janice G. Kaliski

At last, the information about the Hands-On-Physics workshop that I was waiting for had arrived! I quickly ripped open the manila envelope and out came a letter from Hilton Abbott, the Coordinator of the workshop, and a single piece of corrugated cardboard that was 25 cm by 20 cm in dimension. Taped to the cardboard was a 12" bamboo skewer and a plastic bag that contained 2 beads, 3 springs, 1 washer, and 1 ring. I chuckled to myself once it dawned on me that Hilton had sent to me the ingredients necessary for constructing a force thruster. Oh, how amusing!

My amusement turned to utter dismay once I read Hilton's letter. One paragraph in particular stood out. It read, as follows:

"I am using Blackboard.com to support this workshop. Each participant is enrolled in a "course" called **Phyzz** on the Blackboard site. The stuff I've sent to you is for a pre-workshop assignment. To find out what to do with it, check your assignment on the Blackboard web site ..."[1]

My heart sank. Could this be happening to me? There must be a mistake; I simply misread the letter. However, a second reading of the letter revealed the same message. I was going to learn about something called Blackboard.com. My head swam with a mixed bag of thoughts ranging from "Did I ask for this?" to "Was this an expectation of the workshop?" to " Do I need this aggravation?" to "I can't do this!" and finally ending with "Why did I ever sign up for this workshop in the first place?" Yeah, why had I signed up for this course anyway?

Then I remembered exactly why I had eagerly agreed to attend the two-day HOP workshop. I was doing it for all the future students who would be taking PHYS 100, Introductory Physics, which is a conceptual based course. I also remembered my experiences during this past year when I returned to teaching an introductory level course after being away from it for nearly a decade. It had been a big struggle for me. Had I really forgotten how difficult it was to teach those students who take PHYS 100?

[1]Hilton Abbott, personal letter.

I recall the summer in 1995 that I spent working as an engineer at Lockheed Commercial Electronics Company.[2] I concluded then that students need to do the following:

1. To become actively involved in the learning process.
2. To accept the responsibility of assessing whether learning had occurred or not.
3. To accept the fact that it is OK to fail as some of the best learning takes place when failure is present.

My findings from that summer in the workplace were further supported by the knowledge I gained the following May when I attended a PEPTYC Institute.[3] Time was spent comparing and contrasting the models that represented the major reform strategies in Introductory Physics for use in the classroom. Those models contained some common elements:

1. Active learning
2. Strong emphasis on interaction with phenomena
3. Clear and explicit linkage of representation to phenomena
4. Elicit student conceptions
5. Have students evaluate alternative hypotheses
6. Goals of tasks are conceptual and conceptual means are required to accomplish them.
7. Tasks are reduced to a size that is more manageable for novice students to handle.
8. Less is more.

What I discovered then seems even more appropriate now when applied to the conceptual-based students. I suspect that they learn best by doing and helping each other learn in the process. Will my suspicions bear out? Yes, my work was cut out for me!

I bit the bullet and began my transition to becoming a millennium teacher by going to the Blackboard site, confirming that I was enrolled in the workshop, browsing the information about the HOP Project, and downloading the assignments and course documents needed for the assignments to be done by me.[4] Once this was accomplished, I patted myself on my back and did a little jig. I just accessed Blackboard.com

[2]Janice G. Kaliski, "A Teacher In The Workplace-On The Cutting Edge," PEDAGOGY JOURNAL, 3 (October, 1996): 22.

[3]Janice G. Kaliski, "To Dream The Impossible Dream," PEDAGOGY JOURNAL, 4 (October, 1997): 88.

[4]Appendix , pages 1-2.

and I had survived! I can do this! Besides, the promise of more information about "Hands-On-Physics" truly outweighed the mode of delivery of the material.

But, about those assignments to be completed before the workshop, I did not go to the Communications Center and post my paragraph about HOP on the Discussion Board. We are going to chart this course in baby steps!

What Is Hands-On-Physics?

Hands-On-Physics (HOP) is defined as "a novel approach to learning science that responds to the standards by providing a rich, inquiry-based approach. It features sequences of hands-on investigations that involve building sophisticated experiments out of inexpensive apparatus. HOP is heavily experimental, project-oriented, technological, low-cost, practical to implement, and effective for all students."[5]

Initially conceived by MIT Professor John King, the foundation for this new approach was developed with one goal in mind: to assist physics students in the understanding and the application of basic concepts. King's work was adopted and extensively used as the primary approach for teaching physics at MIT, Cal Tech, and Harvard. Today it is currently used for courses in High School *Project Physics* and in College *Technical Physics*.[6]

In January, 1995 work began on the HOP project that was funded by a National Science Foundation's Advanced Technological Education program grant. The intent of this project was to develop materials that could best meet the needs of students preparing for advanced technical careers. Colleague Robert Tinker joined King as co-principal investigator and co-author of the HOP project. Additional assistance came from Hilton Abbott, Professor of Physics at Springfield Technical Community College, and Bruce Seiger, physics teacher at Wellesley High School. Although this quartet of HOP educators come from the Concord Consortium, located in Concord, Massachusetts, other individuals have contributed to the project and have been involved with the classroom testing of the material as it was developed for the project.

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[5]Hilton Abbott, "Project Information", Hands-On-Physics Workshop, May, 2000. **http://hop.concord.org**. habbott@mail.stcc.mass.edu

[6]Ibid.

HOP Units

There are six units currently available for this new approach to learning science.[7] These units are:

Topic	Core Project
Electronics:	Security System
Mechanics:	Aircart
Sound:	Synthesizer
Heat & Temperature:	Incubator
Advanced Mechanics:	Bungee Escape
Light:	Sun Photometer

Generally, HOP is introduced into the classroom via the Electronics unit. The remaining units which are independent of each other can be used alone or together. HOP units can be used as the basis for a complete course or they can be used as components of a course. The number of units chosen to be included in a course depends on the depth of coverage desired or on the units selected, since some units are more time consuming. Abbott uses three modules to support a one-semester Technical Physics course that meets six hours a week or three two-hour sessions. The course is offered during the fourth semester of study and requires reasonably good math skills.[8] Seiger incorporates five units during his two semester high school course.[9]

Each unit is structured around three major sections: "Messing Around", "A Core Project", and "Extensions". Working alone, students can literally mess around during the first segment and not worry about mathematical computations or details. They are free to concentrate on what they see, feel, sense, and can measure. It is also an opportunity for students to learn the relationships between variables. Knowledge gained during this free period is then applied to the development of a core project. By dividing students into groups of four while working on the core project, students can share what they have gained during the messing around segment while constructing a prototype that meets the specs required for the project. Tips picked up during the messing around period begin to make more sense for the student as the project evolves from the first draft through all successive drafts of the prototype.

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[7]Appendix, pages 3-4.

[8]Hilton Abbott, "Project Information", Hands-On-Physics Workshop, May, 2000.

[9]Bruce Seiger, "Project Information", Hands-On-Physics Workshop, May, 2000.
http://bseiger@concord.org

But, there is a catch! The necessary steps leading to the production of the prototype that best solves the problem are not spelled out for the student. Although this may lead to frustration, the approach will likely nudge the student into becoming an independent thinker. Once the core project is completed, students can extend the investigation and further their understanding of the concepts used during the core project by applying them to one or more hands-on activities.

The purpose of the extensions is to give students a chance to put their stamp on things. To be creative! To brainstorm!. However, the process can be time consuming. The outcome of these extensions is the place where students do "science" and come to realize what it means to say "We're scientists". The source of these extensions, which are smaller in scale than the core project, come from suggestions generated by the instructor, taken from among those listed in the HOP manual, or from the students themselves.

HOP Summer Workshops

To encourage the use of HOP units in the classroom, the Concord Consortium invited college and high school teachers to attend one of four workshops being offered by the Consortium this summer. During these workshops, teachers received training on HOP in preparation for participating in an implementation pilot. The characteristics of a good teacher of HOP are a willingness to be loose, flexible, and able to lecture only when needed to convey common strands of knowledge at one time - in short, someone who is ready to adapt the role of a being a coach or a director of student learning in the classroom.

I attended one of these HOP workshops. It was held at the Springfield Technical Community College in Springfield, Massachusetts on May 25 and 26 and was led by Hilton Abbott and Bruce Seiger. Of those present for the training, 12 were high school teachers and 4 were two-year college teachers. We created teams of four with one two-year college teacher assigned to each group. Fortunately, for me, my group consisted of two New Hampshire high school teachers: Gale Christiansen from Pinkerton Academy and Keith Matte from Lebanon High School. Brad Lengas from Sharon High School, Sharon, MA completed the group.

My HOP Experience

We participants received first-hand experience building HOP apparatus and an introduction to the methodology employed with project-

oriented instruction. We began the workshop by spending time calibrating the Thrusters brought with us as assigned.[10] Thrusters serve as both an instrument for measuring force and as a tool for applying force in a controlled way. Concepts of measurement, accuracy, precision, calibration, and force are introduced to the student during the construction of this tool which is one of the hands-on activities during the messing around segment in the Mechanics Unit. Each team tested the results of their efforts during a contest that pitted the thrusters made by the four teams. Thrusters were tested for the greatest distance attained by a sliding puck when moving on a table surface and for its reliability in applying a consistent force to a puck to cause it to slide the same pre-determined distance over and over.

I could not get over how my teammates got into the spirit of the contest with as much vigor as I had. For a moment there, we all forgot who we were as we matched our skills and our techniques against the other teams. Was it possible that we were behaving like students might in the same situation? Was this a fluke? Would the next chance to compete result in the same desire to reach for the stars?

It sure did! The spirit got even more lively when each team constructed the core project for the Mechanics unit-the Aircart. My team was bound and determined that our Aircart would outperform all other entries in competition. We each took turns suggesting changes to our prototype and then testing each suggestion made. We also quietly observed what our competitors were doing to glean additional ideas to be considered or rejected in our quest for the best design.

Two methods were employed for the assessment of the Aircarts. First, the rate of speed change was determined and an estimate of the actual force that accelerated the Aircart was made. A lap-timer stopwatch was used to time the vehicle as it moved along the floor. In the second method, Microcomputer-Based-Laboratory apparatus was used to study the motion of the Aircart. What a fantastic idea for incorporating MBL into the classroom and in such a nonthreatening way as that. Students will be able to handle this form of inclusion of the computer into the lab and not even question what they are doing.

Ideally, before the Aircart has been done, students will have completed the Electronics unit. The four activities introduced during the Messing Around segment in this unit provide an ample foundation for the skills

[10]Appendix, page 5

needed to read circuit diagrams, to connect components within a circuit, and to note the differences between series and parallel circuits. The concepts involved here tend to become abstract and difficult to comprehend only because the associated lab apparatus needed to convey this understanding is not available or not as helpful as it might be when used. HOP takes the mystery out of this area and makes some very abstract concepts become very concrete for the learner through the use of solderless breadboards which "make it easy to hook up and dismantle circuits without soldering." [11] The use of these solderless breadboards was all I needed to become an avid believer of HOP. I'm ready to try HOP in my classroom!

Does HOP Meet My Needs?

Will my students behave any differently than I did when I sampled some HOP activities? Will they notice the same things that my teammates and I did when we assessed each other's thrusters? Will they, too, get caught up in the spirit in such a way that they will not notice that learning is taking place? Hmm, if so, it appears to me that my needs may have been met. Why so? My students may actually become actively involved in the learning process. They may become responsible for assessing whether learning has occurred or not. They may even learn to accept failure.

Earlier in the article, HOP was described as heavily experimental, project-oriented, technological, low-cost, practical to implement, and effective for all students. My personal exposure to HOP activities supports this description. Perhaps, HOP is the solution to my original problem of finding the best manner to teach physics to PHYS 100 students.

What About Blackboard.com?

At the start of this article I didn't mince words about my reaction to learning that the HOP workshop was being supported by Blackboard.com. Since my initial reaction of shock, I have been able to learn more about the courseware. First, I realize now that I am not taking my course on line. Instead, I will be using Blackboard.com as a means of communicating with the students - it will be my link to them - my online component for PHYS 100. Students will be able to access in-

[11] Hilton Abbott and Bruce Seiger, "Project Information", Hands-On-Physics Workshop, May, 2000.

formation about the course, an assignment, or a lab during each class session or whenever it is convenient for them when they are not in the classroom because of the capabilities of the platform.

By using Blackboard.com, I will be requiring my students to become responsible and accountable for their time spent in PHYS 100. I envision them coming into the classroom, sitting down at the computer, and accessing the home page for my course. Once there, students will be presented with a clear pathway via some user-friendly navigational links that will help them move through my pages. They will go first to a section called "Announcements" to discover what will be expected by them as individuals or as team members within a lab group.[12] How will this be accomplished? Will it?

When I attended the HOP workshop, I experienced the ease with which students can access materials needed about HOP activities by going to the Blackboard site. I was not instructed on how the site was designed and established, nor was I provided with information on how to tap into this site for use by my students once I went home. It may be that students will only gain this information about HOP via manuals provided to them at the start of the class. If this is the case, they will use my Blackboard site to learn specific information about my course material and any components, my expectations, and to how to link to external resources that would be helpful. It seems to me that this is fuzzy area and that it will be a daunting task to set up my site. Yes, I felt discouraged!

Actually, I felt overwhelmed until I attended a workshop offered by the NHCTC System Administrator, Lynn Manley.[13] Lynn cleared up the mystery by providing me with a unique address called a Uniform Resource Locator (URL) for my own Blackboard for PHYS 100. I was issued a password that I will use each time I access my home page. My students will each be assigned a password to allow access to the home page for my course. The student view is identical to my view of the pages except that as the instructor, I have a control panel which is where I will create, edit, and control my course.

Lynn suggested that much attention be given to the instructional design of the course. To that end, she gave workshop attendees some design tips from the courseware provider, Blackboard Inc.[15] These tips include:

[12]Appendix, page 6.

[13]Lynn Manley, "Blackboard Course Infor 4.0 at NHCTC", Blaclboard.com Workshop, June, 2000.

[14]Appendix, pages 7-8.

[15]Lynn Manley, "Blackboard Course Infor 4.0 at NHCTC", Blaclboard.com Workshop, June, 2000.

Focus on organization of online materials.
Provide transition between learning components.
Encourage opportunities for knowledge acquisition.
Encourage student participation.
Provide ample opportunities for feedback.
Provide methods for assessment.
Follow proven instructional design techniques.

The purpose of using Blackboard.com is to update the manner in which the material in PHYS 100 is delivered and distributed to the students. It is a means to permit them access to the information at their convenience or when needed on a moment's notice.

Thus, it becomes crucial that students are provided with the following:[16]

An overview and/or an orientation of the entire Course Site.
A clear explanation about how the course materials are organized.
A list of priorities, deadlines, and responsibilities.

One thing I do know for sure is that developing my online component is going to be not only a time consuming task, but an ongoing task. It is quite possible that I will have just "skimmed the surface" in terms of what needs to be done by the end of the Fall term. As the academic year unfolds, I will do what I can to build upon my successes with this project. However, I will most likely be spending the bulk of my time working out the kinks associated with introducing HOP units into the classroom.

Will The Blackboard Change?

It is my intent to vary the blackboard in my classroom. As before in my course, students will rely on the traditional blackboard for gaining knowledge through lectures. This material will be reinforced through coordinating assignments and activities. But, students will also rely on the use of an electronic blackboard to gain access to course information about any priorities and deadlines of the course, such as for a lab investigation, or to acquire additional general information about the relationships between materials provided to the student. By clearly indicating these relationships between materials found on this electronic blackboard, it is my goal to help my students build bridges, see associations, and to recognize the relevance of content elements. If I can do this, then I will have assured my students of their ability to become independent learners.

Will this happen? How will it happen? Only time will tell.

[16]ibid.

APPENDIX - Pg. 1

Hilton Abbott

mp.000: Phyzz

Workshop Assignments

Assignment #1 Before the workshop

- Go to http://hop.concord.org and browse the Introductions of Mechanics, Electricity, & Sound.
- Build a Thruster. You can use the plans in Course Documents, or go to the section of the Mechanics unit
- Try spread-sheet graphing. Go to the Course Documents and look at the Spreadsheet Data. Use Excel (or Appleworks or ClarisWorks) to make a spread sheet graph of this data. A brief explanation of spreadsheet graphing is available in a tutorial. Bring your graph or questions about graphing to the workshop.
- Build a paper clip keyboard. This is part of the synthesizer you will build in the workshop. The Core Project section of the Sound unit has instructions
- Write paragraph about how you hope to use HOP.
- Go to the Communications Center and post your paragraph about HOP on the Discussion Board.

Assignment #2 workshop day 1, morning

- Calibrate your thruster.
- Build a transistor circuit.

Assignment #3 workshop day 1, afternoon

- Measure puck slide distances.
- Plot position and speed graphs with Excel.

Assignment #4 workshop day 2, morning

- Evaluate your Aircart's performance.
- build tone generator

Assignment #5 workshop day 2, afternoon

- Build a (music?) synthesizer.
- Measure synthesizer frequency.

Assignment #6 after workshop

- Build a sound meter
- Design an extension which uses your sound meter.
- Go to the Communications Center and post the description of your Extension Investigation on the Discussion Board.

http://www.blackboard.com/courses/mp000/assignments/38308819/

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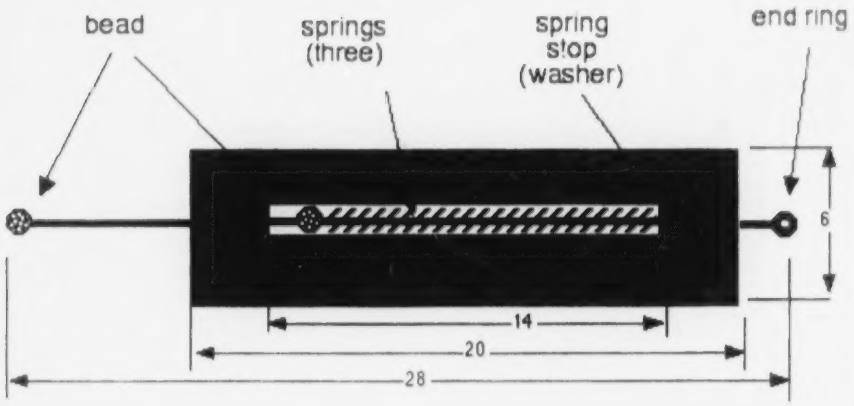
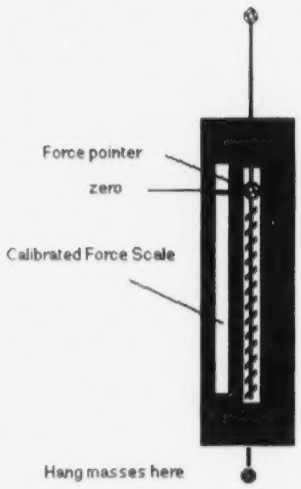
APPENDIX - Pg. 2

Thruster Drawings

All dimensions are in centimeters



The diagram above shows the assembled thruster. The dimensions are in centimeters.

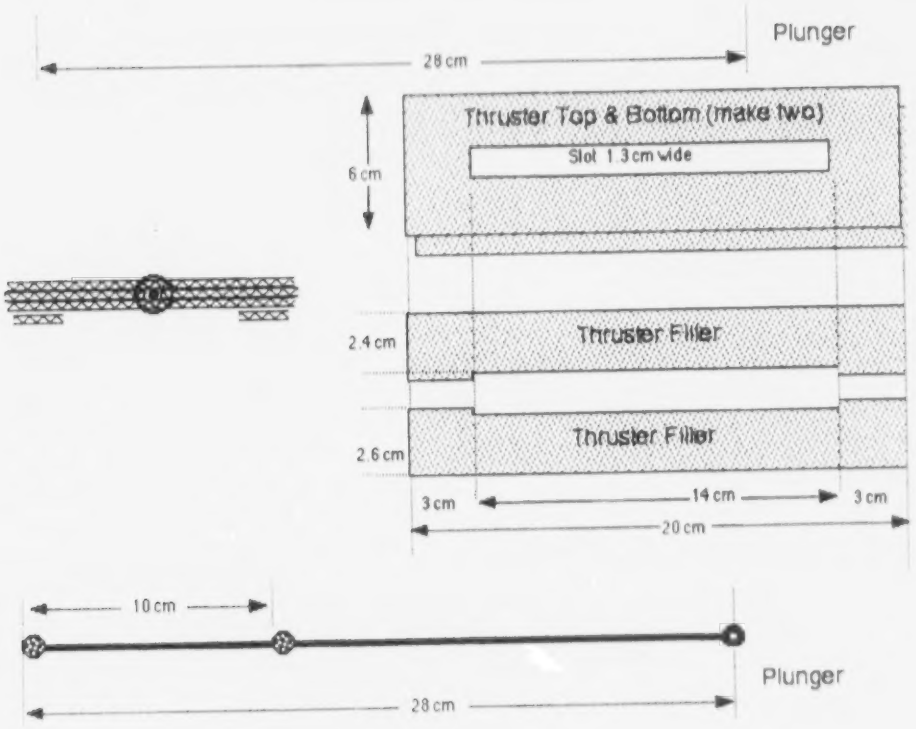


The picture on the left shows the thruster ready for calibration. A mass of ten grams weighs approximately one Newton.

The next page has plans for the cardboard parts of the thruster.

http://www.blackboard.com/courses/mp000/coursedocuments/-3830484?/

APPENDIX - Pg. 3



http://www.blackboard.com/courses/mp
000/coursedocuments/_1830484_1/

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APPENDIX - Pg. 4

Project Information

Hands-On-Physics

- Unit Summaries -

Six Hands-On-Physics units are currently available. They may be used in physics programs in a variety of ways. The Electronics unit serves as an introductory unit. The other units are quite independent and can be used singly or in combination.

- Electronics: Security System
- Mechanics: Aircart
- Sound: Synthesizer
- Heat & Temperature: Incubator
- Advanced Mechanics: Bungee Escape
- Light: Sun Photometer

Electronics: Security System

This is an introduction to circuits and electronics set in the context of creating a building security system. The simplest system consists of switches, a power supply, and a buzzer. You will gain familiarity with interpreting schematics, using breadboards, using meters, and debugging circuits. You will build a power supply used in later HOP units. Physics concepts include electrical terms, an introduction to solid state, and an introduction to experimental skills.
Go to the Electronics unit now.

Mechanics: Aircart

The study of motion is motivated in part by the human desire to move things from one place to another. Designing transportation systems requires an understanding of some basic ideas of physics. In this unit you build an aircart, decide what attributes of the cart are pertinent, and what variables are important for the description of motion. Determining a set of variables along with the relationships between them is the primary work of creating a model. With a good model in hand, design work can proceed. What transportation problems could an aircart solve? What are its drawbacks?
Go to the Mechanics unit now.

Heat & Temperature: Incubator

This Unit explores several key ideas concerning the measurement and control of heat. Feedback is a theme which threads through the history of our study of heat. Feedback is at work in thermostats, homiostatis, and heat engines. Several projects help students understand heat. We start by learning how to measure temperature and then go on to how to control it. As the unit unfolds, you are introduced to the major concepts of heat and temperature that are usually taught in physics, but through a series of interesting projects.
Go to the Sound unit now.

Advanced Mechanics: Bungee Escape

The driving question is whether it is safe to use bungee cords as an emergency escape from a burning building. This project introduces Newtonian dynamics in the context of a bungee jump. Students can use three methods for recording data: electronic, video-based, or MBL. In the electronic approach, time is measured by charging a

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APPENDIX - Pg. 5

capacitor and the experiment must be repeated many times. In the video approach, CamMotion is used to analyze digital images converted from a video recording of a single jump. Interactive Physics and spreasheets are used to simulate the
system. MBL can be used with a series of photogates to measure times during the fall.
Go to the Advanced Mechanics unit now.

Sound: Synthesizer

An introduction to waves, with an emphasis on electronics, the work of this unit centers on the construction of a tone generator and an intensity meter. The tone generator is expanded to become a "music" synthesizer. You use the intensity meter for investigating sound intensity changes in both open and closed spaces. You are then encouraged to develop experiments to study wave properties, and the feasibility of "seeing" with sound.
Go to the Sound unit now.

Light: Sun Photometer

The amount of haze in the atmosphere is increasing for reasons that are not fully understood. In this unit, you build optical sensors that can be used to infer haze levels and contribute your data to an international haze monitoring network. This work involves understanding the physics of light with an emphasis on wavelengths, adsorption, scattering, and photon energy. The unit introduces an amplifier and the concept of amplification. Messing Around Investigate LEDs as lights. Measure the forward voltage for red, yellow, green, and blue LEDs. Look at the spectrum and polarization of the sun, LEDs, flames, other sources, and of scattered light using different kinds of scattering.
Go to the Light unit now.

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http://hop.concord.org/top/summ.html

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Hilton Abbott

HOP Workshop Schedule

Web Introduction

- Build a Thruster
- Browse 3 units on web & comment
- Practice Spread-sheet graphing
- Make a paper-clip keyboard

Day One

8:30 - 9:30 ..... Introductions
9:30 -10:00 ..... Calibrate thruster (force)
10:15-10:45 ..... Demonstrate the LVPS, explore w scope
11:30-12:00 ..... Build the transistor circuit
.....Lunch.....
1:00 - 2:00 ..... Puck Slide calibration & contest
2:00 - 3:00 ..... Start building Aircart
3:00 - 3:30 ..... Group discussion: HOP in the classroom
3:30 - 4:00 ..... Running & Excel

Day Two

8:30 -9:30 .....Test Aircarts
9:30 - 10:30 .....Plan extensions
10:30-11:00 ..... Group discussion: HOP in the classroom
11:00-12:00 ..... Build tone generator
.....Lunch.....
1:00-2:00 ..... Build Synthesizer & measure freq
2:00-2:30 ..... Demonstrate MBL, CBL
2:30-3:30 ..... AirCart Competition, acc & terminal vel
3:30-4:00 ..... Wrap up

Web Wrap

- Aircart extension report (Team)
- Build an amplifier & intensity meter, discuss extension possibilities

http://www.blackboard.com/courses/mp-000/coursedocuments/41702905/

SYSTEM ENGLISH ARTICULATION

Nancy Marashio

Having chosen to teach in the discipline of English, a discipline noted for its range of independent thinkers, how do English faculty most effectively come together?

Initiation of articulation discussions for what is now the New Hampshire Community Technical College System stemmed from transfer discussion of the Joint Management Committee of our System and the University of New Hampshire System. Their June 17, 1992 plan was "to bring together English faculty to initiate articulation discussion and to identify competencies". (Kilcoyne) Thus, initial conversation and initial sharing of syallabi took place not within our system but with post-secondary faculty across the state.

That initial meeting on October 11, 1992 focused on the first English course. The goal was "not to create a uniform course, but to help us become more aware of the diverse ways in which we teach our courses ..." (Steiger). The plan was to share syllabi "to give us a sense of the various course objectives and structures" and then to move to the following questions:

a.) In general, what abilities and skills do our students have when they enter our courses?

b.) What do we expect students to learn in our courses?

The initial meeting generated from System English faculty a productive follow up meeting where attendees "agreed that we seem to share a basic philosophy about what students should experience in a writing course." Naively, faculty requested "just one more meeting to define what we agree upon" across the seven campuses. Ever since, System English faculty meetings have continued.

Never was the growth easy or simple. On January 29, 1993 the "group arrived at three clear categories: 1) what we agree about; 2) what most colleges have and others should go for; and 3) what remains on hold". The struggle of working to articulate - that is, find the words that meant exactly what was intended - defined progress, since words are in fact the "material" English faculty teach.

In category 1 we agreed:

- writing process is the focus - some version of pre-write/ write/ rewrite/edit
- in assessment, drafts "count" but not necessarily for grade; papers are read and graded as whole papers
- grammar, punctuation, spelling are considered but as part of the writing
- course descriptions should include the concept of "confidence" and emphasize the composing process
- courses emphasize a strong sense of audience
- limitations for numbers of student per course should not be overridden
- the first writing course at all seven colleges should be a four credit course (including or not including conferences with students as part of the four hours was not agreed upon)

In category 2 we suggested:

- papers should receive peer response as part of the process
- scheduled classes should have access to computer labs
- students should be active participants

In category 3 we placed on hold:

- what is the ACT/ASSET cutoff point for entrance into the first course? should the cutoff be the same across the colleges?
- who determines placement of students for remediation of first course - faculty? admissions? students? what is the relationship of community education to placement (we believe placement should be consistent)?
- what should the cap be for number of students in a composition class? how would a cap relate to the total number of students for composition instructors?

In order to include all English faculty, not just those who could attend System meetings, faculty agree to discuss the categories back at each campus, elicit standards for papers from each campus, and continue to meet. Each campus was also invited to participate in a unified panel presentation at a New Hampshire Association of Teachers of English conference; the topic chosen was "Freshman Composition in the Technical College."

By June 3, 1993 the work had progressed to "A Draft For Response", representing recommendations agreed upon by English faculty from all

seven colleges. Resolved were such items as use of writing samples in addition to ACT/ASSET scores (and the need to track correlation with actual student performance), consistency between day and evening courses, class sizes of 15 students to support both competence and retention, access to computer labs, first English course offering as four credit option, peer and faculty response to papers, focus on writing process, and inclusion of "competence" and "confidence" in course descriptions.

In addition, standards for papers evolved as follows:

- There ARE holistic (not isolated) scoring criteria.
- We should not impose a bland, overall single scoring system across the System.
- We should not have a "blended" set of criteria.
- We should examine and question the assumptions each set of criteria suggests.
- We find value in ALL the sets of standards in the System.

Pulling from what we already PRACTICE, we were able to articulate as agreements and/or struggles:

- advance and support a thesis, whether implied or stated
- the two levels, implied and stated, are measurable
- unity and coherence
- sentence skills
- paragraph development
- mechanical correctness is a measure of a paper's completeness (though maybe not doneness)
- "feels right" is a measure
- revision is an opportunity to make multiple and serious changes
- when do we grade? and when is a paper ready? are questions
- though neither negotiation between faculty and student nor multiple responses determine completion, a paper is ready for grading after multiple responses and revisions
- organization
- demonstrate an awareness of subject, audience, and purpose
- appropriate use of language
- appropriate choice of words
- editing, proofreading
- prewriting is part of the process but is not graded as product

Finally, English faculty looked beyond English toward writing across the curriculum, professional development funding for team approaches, entrance competencies, and particularly to "the relationship of variation and consistency."

Later meetings expanded focus through brainstorming concerns and then working through implications raised by those concerns.

By February 25, 1994 System English writing process and writing product outcomes were adopted for inclusion as one section in local campus course designs.

Writing Across the Curriculum focus led to a meeting on May 18, 1994 to specifically address the relationship of the teaching of research to courses, which again raised the articulation among high school, two year college and four year college English classes.

By January 6, 1995 English faculty had learned to work together so well that consensus became the determiner for agreement about the first English course. We reported:

A. A common title - College Composition

B. A common first paragraph for course description -

In this course, students learn to write clearly and effectively for defined audiences through a variety of strategies. Emphasis is on the writing process from pre-writing through drafting, revising, and editing.

C. A common list of outcomes -

The Associate Degree student will:

1. Use the following steps in the WRITING PROCESS as the way to develop writing product
   - Pre write
   - Write/Draft
   - Revise
   - Edit
2. Adapt the writing process to produce WRITING PRODUCT that
   - has a focus
   - is developed
   - is organized
   - uses language appropriate to the purpose and audience or used standard written English
   - uses appropriate format
   - is a communicating, readable document

D. A list of competencies -

PROCESS COMPETENCIES

- Participate actively from pre writing through conferencing and peer editing
- Pre write to generate; pre writing counts but is not graded
- Present drafts for peer and faculty response; drafts count but are not graded
- Emphasize a strong sense of audience
- Make multiple and serious changes in revisions
- Edit; proofread

PRODUCT COMPETENCIES

- Ready a paper for grading after multiple responses and revisions
- Advance and support a thesis, whether implied or stated
- Measure both implied and stated levels
- Organize
- Demonstrate an awareness of subject, audience, and purpose
- Use appropriate language
- Choose appropriate words
- Consider grammar, punctuation, and spelling as part of the writing
- Measure paper's completeness by mechanical correctness
- Unify
- Be coherent
- Measure by criterion of "feels right"
- Assess papers as whole papers
- Evaluate according to holistic scoring criteria

E. Course credits - a 4 credit college Composition course offering available at each campus

F. A request - that numbering of courses be addressed across the System so same courses have same numbers.

Sequence of next items to address became: second English courses, entrance competencies, independent study, life experiences, and writing across the curriculum.

Sharing of English course materials from all seven campuses continued, revealing that the agreed-upon first paragraph for College Composition was not evident in every catalogue; English faculty need to align cross functionally in order to implement decisions college wide.

By May 13, 1996 consensus was reached that all courses transferable for second English Course should contain four commonalties:

1. To demonstrate college level writing in a variety of assignments, including documentation of outside sources.
2. To analyze and respond to challenging texts.
3. To continue to develop critical thinking skills, including an awareness of diverse experiences and concepts.
4. To gain experience, competence, and confidence in communication skills through class discussion and oral presentations.

As articulation meetings continued both inside and outside the Community Technical College System, System English faculty decisions were reinforced by recognition that the following UNH writing needs are met across the Community Technical College System first English courses:

- 5 pages of writing per week
- process writing
- lots of reading; though not to take over the course (texts at discretion of faculty)
- regular, frequent conferencing
- research mechanics (how to do bibliography, correct citations, avoiding plagiarism, paraphrasing/quoting)
- many roads i.e. methodology etc. at discretion of individual faculty

Although English faculty continue to share second course offerings, regionalization and change to a new accrediting body have taken time priority. That work, too, builds on merging of skills and commitment.

One of the most unanticipated benefits of the attempt by System English faculty to balance individuality and alignment is the forging of collegial relationships. Faculty from all seven campuses provided professional expertise that helped ALL continue to grow. Individual articulations, created with expertise and care, framed System outcomes and competencies. From that first statewide meeting at the 1992 UNH conference on "The Writing Process: Retrospect and Prospect", Community Technical College English faculty worked to transform campus-by-campus English courses into System alignment. That coming together continues to both affirm and inspire the mastery professed by English faculty of the Community Technical College System and continues to benefit our departments, our campuses, our system, and most of all - our students.

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STARTING WITH THE BIG PICTURE

Sandra Cole

Last fall I attended the American Psychological Association's Annual Convention in Boston. The program, which was roughly the size of a large university's catalog, read like a Who's Who volume of major voices in psychology today. From the wide variety of lectures available, I chose to attend presentations by Howard Gardner and Robert Sternberg on Intelligence, Peter Salovey on Emotional Intelligence, Albert Bandura on Social Learning Theory, Ludy Benjamin on Archival Research, and T. Berry Brazleton on Child Development. But the address that gave me the most to think about in my own teaching was by Dodge Fernald, a professor of psychology at Harvard University.

Entitled "Grasping the Elephant: On Teaching Beginners in Psychology," his thesis was that it is much easier to understand an unfamiliar subject if you first grasp the 'whole picture.' Dr. Fernald used the story of "The Blind Men and the Elephant," each of whom incorrectly surmised from his limited exploration that the elephant resembled everything from a snake to a tree trunk. He then asked us to think about how much more accurate their understanding would have been, had they been able to survey the entire beast before checking out each individual part.

The concept of first surveying the elephantine variety of subjects covered in Introduction to Psychology intrigued me. I hadn't thought much about setting up a framework for students to fit their future learnings into, but it made very good sense to me- being a wholistic sort of person myself.

For the week before school started, the idea rolled wholistically, but formlessly, around in my head. Then I came up with a whole new approach for my end-of-semester assignment which had always attempted to reassemble the psychology elephant into a meaningful 'whole.'

In my first psychology classes this fall, I gave my students a once-over the whole elephant by taking an incident from my life (an emotion-laden horseback riding lesson at age twelve). Having them follow in the Table of Contents, I discussed ways of looking at that incident which covered each major topic (chapter-by-chapter) in the text. I explained how researchers from various schools of psychology might have analyzed that incident, how my body was affected by the emotions I felt, how my

perceptions of the incident differed radically from those of my little sister, what states of consciousness I went through, what I learned during the lesson, why my memories of it were so vivid, what kinds of intelligences were being utilized, what it said about my developmental stage and my motivation, and even hypothesized what mental illnesses might have been caused by the incident and what therapy methods might alleviate them.

I gave them my whole elephant, then asked them to each construct their own elephant, chapter by chapter, part by part, as we went through the semester. Students were asked to choose an incident in their lives, describe it, and, as we went through the text, connect their incident with each chapter topic. This assignment was called the Psychology Overview. The following assignment sheet was handed out to clarify the process for them and guide them in their work.

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PSYCHOLOGY OVERVIEW

Choose an incident from your life. You will look at that incident in the light of the subject matter in each chapter of your text.

First give a full description of the incident, being sure to include your age and all people/objects that were significant in that incident.

Take each chapter in order, telling what light that chapter might lend to new understanding of that incident. Many chapters easily add a dimension of understanding to what happened. With others, such as the introductory chapter, you might have to speculate. For example you could tell how differing research methods might study your incident or how different prominent schools of psychology might explain the happenings. Feel free to ask me if you can't see a way to include a chapter in your presentation.

I would advise setting a time, such as right after each test, to update this paper as we go through the course. Waiting until the end and then scrambling to do it all, will probably lead to a less focused paper that shows less understanding of each distinct facet of our studies. I will be happy to look at selections if you are unsure of how your work is going. Psychology underlies every facet of our lives and our dealings with others. It is my hope that this project will help you to appreciate and use the material you learn in a deeper, more meaningful way than before.

You will be graded on four qualities- **Comprehensiveness, Appropriateness of Connections, Terms & Concepts Included,** and **Correctness**- each worth 25 Points in scoring.

****

Following each test I reminded my students to update their overview with a paragraph on each of the chapters covered on the test. I was happy to look at their works in progress and give them feedback on how they were fulfilling the assignment.

At the end of the semester I was very pleased with the manner in which many students had completed the assignment. A Vietnamese refugee wrote of her escape across Laos with her grandmother when she was six years old. One student wrote of her 'near escape' on her last solo hike in her quest to climb each of the 48 peaks in the White Mountains as an antidote to her feelings of discouragement when she decided to drop out of her almost completed doctoral program. An 18 year old wrote of her feelings when her boyfriend broke up with her two years earlier, at 16, showing a very mature perspective. One wrote of an automobile accident and its effects on all the people involved. A father wrote of his son's diagnosis with diabetes. A traumatic flight to Florida and the concerns on the return flight was covered by one. And one of my favorites was the story of how one young woman became the 'mother' to a baby mouse (named Cleve for the place where she gave him safe haven) on a weekend when she had fully intended to party like the carefree college student she was. By applying each concept studied in psychology to a real life incident, I think each of these students came to experience first hand the pervasive nature of psychology in explaining how we perceive, react, and learn from daily incidents.

By beginning your class with an overall survey of the elephant, you help students to recognize major characteristics of the creature as well as begin to build an understanding of how each piece fits together to make up the whole beast. With this framework in place, the student can begin to construct his own experience into a coherent whole, therefore building a deeper, more personal understanding of the course material that you strive to teach. Knowing the whole picture allows students to build their structure from which to hang the many facts presented in your course. And adding the many varied angles of understanding from your students may give you a deeper understanding of the elephant you teach.

PSYCHOLOGY OVERVIEW

Sandi Hennig

The incident that I have chosen for my overview happened when I was a young child. My memory of the circumstances may be a bit overshadowed by my adult views of the issues. I will try to remember them in a child's eyes.

I grew up in Connecticut in a suburban neighborhood. My memories are mostly happy and without any tragic events. The summer I was eight the house across the street that had been empty for several years had a moving van in front. My mother told me that the people that had lived there before were moving back. I can remember hoping that the kids would be nice.

When they had settled in, my mother and I went over to visit. There was a girl that was just a little older than I was. We both shared the same first name. I quickly became Little Sandi and she was Big Sandy. We became inseparable.

Most of that summer was spent playing at my house. I don't remember spending much time at her house but all the kids played at my house. Some of those summer nights were spent sleeping in a makeshift tent under the clothesline in my backyard. I can recall many nights loud voices coming from Big Sandy's house. Her mother and father seemed to be always fighting. Her father's voice was loud and her mother sometimes sounded like she was crying. It made me feel very uncomfortable. I don't ever remember talking about those voices with Sandy. It was almost like we didn't hear them though clearly we did.

I asked my mother one time why Big Sandy's parents were always yelling. She told me that Big Sandy's mother was sick. No explanation of what kind of sick, just sick.

The summer passed and we went back to school. Big Sandy and I were best friends that school year. More and more time was spent at my house. My mother didn't seem to mind. Big Sandy seemed to like it better at my house than her own. No one ever said anything about her parents. It was like they didn't exist. Sometimes silence is more frightening to a child than talking about things. I always wondered what was going on.

The next summer was the same as the last. Big Sandy spent all of her time at my house. One day we had gone over to her yard to play on the swing set in the backyard. We very rarely went to her yard to play. I can

remember we were swinging when her mother came out of the house. She seemed to be walking lopsided. She had a plate of cookies and asked if we wanted one. Her voice was so garbled that I could hardly understand her. We took one and than we ran across the street to my house. I told Big Sandy that her mother smelled funny. She said "I know". That was all. It was years later that I realized that the smell was alcohol.

Towards the end of the summer the yelling at Big Sandy's house got louder and louder and more frequent. Everyone in the neighborhood pretended that they didn't hear. It was like the husband and wife across the street ceased to exist.

One day all the kids in the neighborhood got together to play hide and seek. As my brother counted to one hundred, Big Sandy and I ran across the street and hid in the hedgerow that ran along side her house. My brother hadn't finished counting when the door from Big Sandy's basement was flung open. Her father came running up the stairs screaming for someone to help him. He was shouting that he had to cut her down. I peeked into the basement and saw Big Sandy's mother feet swinging off the floor. We both ran back across the street.

My mother shooed all the kids into our house with orders to stay there. From the upstairs window I could see blue and red lights flashing in Big Sandy's driveway. Later a long black car came.

Big Sandy stayed with us for the rest of the summer and through most of the fall. No one ever said what happened. Not one single adult sat down with us to explain. They just said that Big Sandy's mother died. Told us not to ask any questions. I had lots of questions that went unanswered.

Later that winter Big Sandy and her father moved across town. I would see Big Sandy at school but it was like we were strangers. We never spoke about what happened that day. She never said whether she looked into the basement like I did. It was like we had taken clues from all the adults. Never speak about it.

Introducing Psychology Chapter 1

Freud would say that who I am today was formed by that event that had happened many years ago. He would say that there was some deep part of my unconscious mind that would not let me remember ALL of the events of that summer. Would he see the problems that the

behavior of the adults brought to us kids? Maybe John B. Watson would have been able to help had he been observing all of the players.

I'm sure that if studies were done on the psychological health of children that had been told everything that happened about the death of Big Sandy's mother, they would find better adjusted children. I know for many years I felt that we (Big Sandy and I) should have done something. Maybe played more in her yard or not ran when she gave us the cookies. Guilt is not a good feeling for a child. I wonder how the psychological health of Big Sandy turned out. Did she ever receive counseling?

The Biological Foundations Of Behavior Chapter 2

I remember vividly that run across the street after seeing into the basement. I can remember my heart racing. I am sure that the fight or flight syndrome came into play. My brain seemed to be sending signals faster than my muscles could respond. I remember shaking uncontrollable.

I wonder if the effects of the alcohol on Big Sandy's mother's brain was the direct cause of her suicide. Did she really mean to take her own life or was the alcohol on board so strong that she no longer knew what she was doing?

Stress, Health and Coping Chapter 12

Being so young when this event happened I can not say exactly whether stress became a problem for us. I do remember that Big Sandy began to wet the bed at our house. My mother never said anything to her. She just changed the sheets every time it happened without comment. I also remember having nightmares that were very frightening. I wanted to sleep with my parents a lot. Maybe I was afraid that they would leave me like Big Sandy's mom did. My asthma seemed to be a little worse than usual that winter. Maybe my health was affected by the stress.

It seems to me that we kids were kind of left to cope on our own. Silence was how the issue was dealt with. No one I knew had ever died before. I needed to talk about it. As time went on it all seemed to become almost unreal. Was the adult concept of pretending something didn't happen and it will all go away, the way to handle the situation? I always felt left to drift in a sea of questions.

I still have strong feelings about suicide. It causes feelings of anger. How can someone do that to their family? I find it difficult to see the agony of the person who thinks the only way out is to take your

own life. Are those feelings because I never was allowed to see the whole picture as a child? Was denial an emotional distancing coping strategy used by everyone?

Sensation and Perception Chapter 3

Could it be that my dislike for basements come from the experience of my childhood? I can remember every sensation from that summer day. I remember the smell of the hedgerow. I remember the bright lights in the driveway. I even remember the sound of my brother's voice counting during hide and seek. All of these sensations at times come back to me. It is like they are connected to the events. Simple every day things. It's not like I think of it all the time, just flashes that come up.

I am sure that I did see what I saw in the basement. It is so vivid that it can't be thoughts brought out later in my adulthood. I could not have brought a vision that was not there.

Consciousness and Its Variations Chapter 4

I feel that back in my subconscious the events of that day are always there. I also know that I feel so strongly about suicide because of it. As a child my increase in nightmares after that summer day never really were about suicide. They were always about darkness. Basements are dark, death is dark, is there a connection? Probably. Even still I dream about being stuck in a small space and not being able to get out. Is there a connection between that and being stuck with a rope around your neck?

Big Sandy's mother was an alcoholic. Her father was either fed up with her alcoholism or an abusive man. I guess we will never know. This addiction to alcohol was a prime example of the destruction that it causes families. Alcohol is one of the biggest contributors of spouse abuse. Even today people don't talk about it. I don't remember anyone ever trying to help Big Sandy's family.

Learning Chapter 5

Were we as children conditioned not to speak of unpleasant things? Not to interfere into other families' lives? I remember my mother telling me not to ask questions, that it was none of my concern about what happened. After a while I did stop asking. So did the other kids. It was like nothing ever happened. I wonder if that fact has something to do with my difficulty in sharing thoughts and concerns in my own life. A left-over rule from childhood. Don't talk about it. It is a learned behavior.

Memory Chapter 6

I may not remember where I parked my car some days but my memory of that day is clear. I can recall the weather and the kids that were playing hide and seek. I can remember Big Sandy curled up on my bed. I remember the lights in the driveway. It is all there waiting if I need to pull it out. It must have been a very significant episode in my childhood for it to be so clear. I wonder how much Big Sandy remembers. Did she block some of it out? It would be interesting to know. I asked my sister what she remembers. She was older at the time. Her details are very similar to mine. However, she said that my father went over to the house to help. Funny, I don't remember my father being home at the time. I have tried to bring him into the picture. He never once mentioned it. I asked him. He said he did go over and helped get her down. That was all. He didn't seem to want to talk about it.

Thinking, Language and Intelligence Chapter 7

The only way I seem to be able to connect this chapter is to state that adults are misguided to the level of understanding kids have. Kids need information and explanation when things are going good and when things are going bad. They understand a lot more than we give them credit for. We all would have dealt better with the circumstance if we had talked about it. Not talking about it gave us no protection from bad things. It made them worse.

Motivation and Emotion Chapter 8

I am sure that my years in Emergency Medical Services could have been traced back to the helplessness that I felt in that situation. Even as a young child, I always wanted to help. I wanted to know how to help. The worst feeling is not knowing what to do or what to say. How to comfort someone. I feel so much more in control with the knowledge that I have to help.

From this experience, I have allowed my own children to show emotions and to receive as much information as they feel comfortable doing. I wonder if Big Sandy went on to have a normal life with relationships that were healthy. I don't remember that she dated much in high school. I wish so many times that I had tried to get close to her again. It was so strange that we could be so close and then in a time of crisis build such a gap between us. Taking leads from adults, I guess.

Personality Chapter 10

Even though I don't agree with Freud theories I have to agree that this event that happened in my childhood had consequences. I know that it made me a more compassionate person. But it is not a deeply depressed event that is lurking in my subconscious. It is right up front. Bad things that happen can and do have good outcomes. I think that it made my relationship with my mother closer. It made me a better mother. I could never bring such sorrow to my own children.

I wish that I could have known how Big Sandy's life really was at home. Did her family have any loving moments? Was her personality shaped by her unsettled childhood?

Lifespan Development Chapter 9

My growing up years were very happy and secure. Even the events that happened that summer really did not overtake my childhood. I grew and matured more or less according to plan. I may have had a bit more of an attachment to my mother because of what happened. I was going to make sure that my Mom was going to stay around. I may have been clingy for a couple of months. I am glad that my mother was there for Big Sandy. I hope in some small way it helped her.

As an adult I can say that I get angry when I think of that summer. Suicide is never the answer. It leaves such horrible feelings behind. I think that it may have shaped me into a more caring adult. More perceptive of other people's pain. I hope.

Psychological Disorders and Therapy

I know that Big Sandy's mother was an alcoholic. If she had some underlying mental illness I really couldn't say. Was her suicide intentional or an accident? My mother told me that she had tried to harm herself many times. If this is the case then maybe she suffered from a major depression along with her alcoholism. There were not many options for help back in the 1950's for women in crisis. Could she have been helped if this all had happened now? I think so. There are many forms of treatment that would be available to her? Medication that is available now to treat depression might have prevented a horrible situation.

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TAKE-HOME DISCUSSION PAPERS: AN EFFECTIVE ALTERNATIVE TO TRADITIONAL TESTING TECHNIQUES

Philip Eller

An educated person, in my opinion, is one who not only knows a lot of information but who also understands it, thinks creatively about it, appropriately applies it, and articulates all of these skills in a meaningful form to others.

But the current, common concept of education emphasizes the acquisition of an extensive reservoir of memorized facts; therefore, the traditional method of testing reinforces the belief that the goal of education is the acquisition of facts rather than the essential "educated" skills noted above. The American system of education has indoctrinated us all with its conceptualization. The main content and focus of schools, from kindergarten through college, emphasize the accumulation of facts and knowledge by memorization, and evaluates that "education" by the traditional testing model — closed-book, objective questioning.

In contrast, the concept of an educated person I used above is a standard one of the liberal arts and includes the following four essential aspects: 1) a challenging exposure to an extensive body of knowledge or field of study and its basic concepts, 2) knowing where to find what you want and need to know, that is, relevant information, 3) the ability to apply this information and these concepts in a synthesized, creative, and articulate manner, that is, to demonstrate thinking, and 4) the ability to articulate and express all of the first three.

The Take-Home Discussion Paper

In my experience, one of the best "testing" methods to assess this model of education is the take-home discussion paper, one that I use as mid-term and final "exams" in all the classes I teach. In most classes, this involves one question for each chapter covered and is as comprehensive in scope and application as possible. The set of questions is usually distributed to students a week in advance of the date due. Since students have extensive time and opportunity to address the discussion questions posed, the standards for "grading" the papers can and should

be quite high. Each question does, by necessity, focus on only one or two major concepts addressed in that chapter, and therefore restricts the breadth of material that can be covered. I use this method in both introductory classes as well as more advanced ones.

The nature, scope, and expectations of the questions given are similar to, but usually more than the essay question(s) included in the common exam format of objective and subjective questions. This method is most appropriate for the social science (Sociology) that I teach. Admittedly, my approach toward the introductory classes in the social sciences is one that is intended to facilitate an overall appreciation and understanding of the subject rather than an extensive acquisition of specific facts and ideas.

Pros and Cons

There are, of course, pros and cons to this method of evaluating student learning. The strengths include a focused learning, especially for the most important concepts of the topic, rather than a scattered accumulation of all the "facts" in the chapter. A focused thinking and integrated application are also demanded. "Memorization" of the basic material, at least that addressed in the question, is indirectly but meaningfully facilitated, a remembering that will last long past the date the "test" is completed. Students always report spending a considerably longer time in completing the take-home "exam" than they would have spent preparing (most often, cramming) for a standard test. The following sample question will give a better idea of these concepts. A question covering the chapter on social stratification would ask, "Compare and contrast the Structural-Functional and Conflict perspectives on the existence of stratification in society." An appropriate answer would assure that the student 1) knows the basics of these two Sociological perspectives, 2) understands the concepts of stratification, and 3) can apply the first to the second; a task that requires knowledge, understanding, and thinking, as well as the articulation of all three.

The weaknesses of this method include the obvious fact that it limits the breadth of the areas that can be addressed, as it is impractical and unreasonable to ask questions about "all" the topics covered in a chapter. A typical mid-term discussion paper would only include one question on each of the six to eight chapters covered to date. Therefore, this

method of facilitating the acquisition of necessary facts and information must be accompanied by other methods and techniques employed throughout the course, including lecture, small group discussion, report writing, etc. that will accomplish this goal. With traditional-aged students, this attention is especially critical in order to ensure a basic acquisition of facts. It can also be suggested that this method will not promote quite as well the rote memorization of the needed "facts" of the topic. However, as noted above, I would contend that this method does in fact facilitate a longer term memory of the details of the topic, precisely because they are required to be meaningfully utilized by the student, and are used repetitively in that process.

Student Feedback

Feedback from students regarding this method has been overwhelmingly positive, even enthusiastic. Most report spending more time in completing the discussion paper than they would in studying for a conventional exam. But, even more important to the students is the sense that they participated in a much more meaningful learning experience, one which is even more striking as they analyze and compare it with their traditional preparation for a testing situation. They really do feel more satisfied about the experience. And they confirm the idea that they have indirectly, almost unwittingly, better remembered the actual facts and details about the topics addressed in the questions.

This method of student evaluation is also consistent with the "tone" that I try to set in these social science courses for students; that is, a broad understanding, appreciation, and application of these concepts in their daily life — present and future. This method also respects and reinforces both the intellectual curiosity and the personal integrity of students, qualities that I believe to be absolutely essential in the education process. This method is especially appreciated, for these reasons, by the non-traditional students found in continuing education programs. However, even most traditional-aged students are positively challenged and inspired by this method of assessing their educational attainment.

Give It A Try

The take-home discussion paper method of evaluating student learning is one that I would encourage instructors of all types of classes to consider, even if only to be added to their repertoire of traditional

methods of testing. For the reasons mentioned above, I would suggest that this method, even if only used sparingly, would be beneficial for classes that must require extensive acquisition of specific facts and information. The method is one that all instructors will find quite challenging to their traditional conceptualization of assessing education.

EXAMINING THE COMPONENTS OF PROBLEM BASED SERVICE LEARNING

Joe Perron

It is my intent with this article to establish a basic understanding regarding the components involved in Problem Based Service Learning (PBSL), thereby, allowing the reader a chance to establish his / her own definition of PBSL, and to come to his / her own conclusion regarding the use of PBSL in curriculum.

There are two educational approaches that comprise the components found in PBSL. Educators from secondary and post secondary institutions know these two as Problem Based Learning (PBL) and Community Service Learning. Though distinctively different, these two approaches are being hailed by cognitive researchers as a learning break through in assisting students to associate material from the classroom and applying it to the real life scenarios.

Problem Based Learning (PBL), also known as 'experiential learning' and 'collaborative learning' refers to a method of utilizing students in a group context to solve case studies. This includes examining all issues relevant to the case study, identifying the problems and, researching the solutions. Understanding the reasoning behind Problem Based Learning is essential to building a successful learning community. This strategy relies less on teaching (the teacher becomes an advocate and a coach) and places the focus on student-centered learning through collaboration between student and teacher (Mobilia and Gordon, 1998). The end result should reflect an increase in a student's independent thinking process, and willingness to take chances and problem solve without fear of failure. A 1994 study at the State University of New York on juniors matriculated in the occupational therapy program researched the difference in students who used traditional learning methods such as rote memorization for exams, versus students involved in the problem based learning process. The result of the study after one year went heavily in favor of those students who utilized the rote memorization methods; however, over a year's time when students were retested on material covered the prior year, those students involved in the PBL process appeared to prob-

lem solve and score significantly higher on the retest than those students who used traditional learning methods. (Stern, 1997).

The study done at State University of New York highlights the concept behind PBL. PBL is a learning tool used to assist a student in creating a level of authenticity (from real life problems), while increasing the complexity and uncertainty that arise in everyday situations. The student will need to gain a command of resources, thereby, increasing the level of self direction and self adjustment. Essential to the student's level of understanding in PBL is in identifying two types of learning standards. The first learning standard is essential knowledge, the ability to read, write, and to do basic mathematics. These skills are necessary to meet the compencies set forth for any student involved in an introductory level course. The second element in learning is critical thinking skills, the ability to organize, to calculate, to problem solve, to communicate and a willingness to generalize learned knowledge to new situations. These skills are progressive and necessary for the student who specializes in a particular area of study and in developing the skills necessary to meet the challenges of everyday living.

Other research completed during the 1990's by occupational therapy educators indicates that PBL is effective over a period of time in assisting students to make direct a connection between what they presently know, what they need to know and how to resource what they do not know. Research presented (Sarlo, Piper and Agnew, 1994) on Problem Based Learning focuses on three objectives:

- The acquisition of knowledge
- The development of self-directed learning skills
- The practice of the clinical reasoning process

These three objectives are the basis for integrating PBL into the curriculum. The integration of PBL into occupational therapy (OT) curriculum occurs during senior level courses. It is based on a series of themes blocks replacing discipline specific courses. Problems are chosen to stimulate reasoning and to evoke an enquiry as to the nature of the occupational dysfunction, the life events involved in the case, biopsychosocial and therapeutic techniques chosen to solve the case. (Sarlo, Piper, Agnew, 1994) The PBL format is presented to students in the form of problems. These problems are specific to OT and were presented in a number of ways, including but not limited to, video re-

cordings, case studies and referral notes. The object was to regulate how much information was given to the student, thereby creating a situation where the student had to develop and ask clinical questions to solve the problem. The problems were graded as a student achieved success or when a student felt stagnated with the problem. The results for each student were then mapped in a graph format as a visual chart of the student's academic success or failure.

There have been a number of articles in OT literature that support the use of PBL as an effective teaching tool. Despite the evidence presented here, there are few studies that support a significant difference between students who were taught with conventional methods versus those students who received PBL. (Sarlo, Piper, Agnew, 1994 Stern, 1997)

Community service learning is a method originally brought to the forefront of education in the 1930's by John Dewey (Rhodes, 1996). Spurred on by dwindling enrollments and tough economic conditions, Dewey felt that land grant colleges and universities if united with business could help end the 'great depression'. Spearheaded by business, colleges and universities would become involved in community service as a method of mentoring an on the job education. Roosevelt's Work Projects were actually the result of this collaboration between business and post secondary schools. Fast forward to the 1990s and the primary purpose for community service learning has been to develop a mentoring process for students in high school who seek out an alternative to the traditional high school education. As the 90s come to a close, the new driving force behind community service learning comes from colleges and universities that seek ways (eg: Americore, VISTA) to assist students in developing the social conscience and professional behavior that is required to be employed in today's business field. Sounds simple, but is the concept of community service learning only about developing a social conscience and professional behavior? Could the word 'learning' as referred to in community service learning actually refer to something else?

Robert Rhodes, in his book, 'Community Service and Higher learning; Explorations of the Caring Self', uses the word 'positionality' to clarify the relationship between community service learning, learning and application of learning to knowledge. By citing positionality, he refers to use of the epistemological nature of how one comes to knowledge, learns knowledge and uses that knowledge. Rhodes drives home Dewey's point (1916 address to educators) that a 'democratic society is depen-

dent upon an educated citizenry capable of making informed choices and actively participating in community, regional and national governance. Dewey's point is that educators play a key role in the development of social conscience of our youth. Rhodes explores this thought and goes as far as to suggest that schools have a primary investment in assuring the development of students in making decisions of moral significance. Rhodes continues to develop his theme by citing numerous examples of success stories in college where students gained confidence in their area of study only after doing community service. Once again citing Dewey, Rhodes alludes to higher education's lack of product by developing students who are able to recite the facts, but have little working knowledge of the social context in which they will soon be employed. Rhodes notes that students who lack community involvement will demonstrate civic apathy and are less likely to participate in civic positions after graduation from college. Rhodes offers this point to back up his claim: many of today's political leaders were once involved in community or church organizations, citing that both the President and First lady were VISTA volunteers during their undergraduate years in college.

Rhodes offers these eight principles for consideration when developing a community service program.

Principle1: Community service provides a sense of self and vision for others when committed to working with others.

Principle 2: Despite the differences in backgrounds, culture, economic status, there is a mutuality between the service worker and one who receives the service. They work as one.

Principle 3: The central focus of the project is a shared sense of solidarity.

Principle 4: Community service projects are multicultural and diverse; thereby, presenting challenges to students to reach beyond the traditional.

Principle 5: Community service must include reflective action linked to broader social concerns, with a goal to foster critical consciousness among students.

Principle 6: Critical community service seeks to link traditional classroom learning with experiential learning.

Principle 7: Critical community service is intended to create social change; therefore, there is an expectation that students will engage in a larger struggle to improve conditions.

Principle 8: Critical community service should be thought of as a form of liberatory education.

Another view on community service learning comes Jill Reilly. Like Rhodes she is an advocate for the use of community service in learning; however, unlike Rhodes who focuses on the 'service' as a key agent in learning, she puts most of her focus on the mentoring process. In her book, Mentorship: The Essential Guide for Schools and Business (1992) Reilly defines mentoring as the "fostering of young adult's development by believing in a shared dream, and by helping the young adult reach that dream." It should be a supportive relationship between youth and an adult who can offer guidance, support, and concrete assistance. The end result should show gains in confidence, self knowledge, knowledge of the field, interpersonal skills and a sense of autonomy. Reilly also notes that in reaching these goals one's career pathway should become clearer and the youth's critical thinking skills should become sharper. To assist in fostering this mentoring role, Reilly addresses the need to have the youth reach out to agencies that clearly identify the agency's problems and needs. By using the agencies, the fostering develops as a student and a mentor work as a collaborative team to solve a problem or meet the need within that agency.

Reilly supports her theories with research of mentoring programs in the high school systems of St. Paul and Minneapolis, Minnesota. Reilly contends that service learning for those who seek alternative education is really a blending of the traditional academic study and doing community service, where traditional education is used in solving a real life problem.

While all of Reilly's documented work is focused on high schools, there is clear evidence that providing students with community based opportunities will enhance classroom lecture and support professional behavior development. Of particular interest are the student profiles that are given at intervals throughout the mentoring process. These profiles ask the mentor to rate the student and the student to rate him/ herself. After completing the rating form the student then meets with the teacher/councelor to review strengths and areas needing improvement. The areas profiled include creativity, motivation and learning. I found the rating system to be similar to the format developed in the 'Claremont Learning Process' including such categories as gathering information and sorting through the information before settling on a decision to move forward.

After examing these two components that make up PBSL one might wonder why there should be a blend of these two unique educational approaches? The answer is quite simple and is found in the weakness of each approach. The Problem Based Learning approach relies on manufactured information and input. It is reliant on a controlled environment that allows for mistakes to be made while encouraging risk taking in thinking strategies. Real life situations don't always allow for someone to work individually or work collaboratively to problem solve a situation. On the other hand, community service learning relies on several factors. First, there must be an agency willing to participate. Second, it relies on the student volunteering and being flexible to the agency's schedule. And third, there needs to be a mentor who understands what the student should get out of the community service project. Being part of a team that experiences real life drama, action and results sounds rewarding, but if the student only views this as cheap labor through volunteering then the question arises, what has been gained?

The strengths and weaknesses of both PBL and community service learning lead researchers at Antioch College in Keene New Hampshire to develop the concept of Problem Based Service Learning. The blending of the two approaches into PBSL was first used in a graphic arts course. The course targeted several businesses who identified problems in marketing and sought the assistance of the college to help problem solve their situations. The students were told to research the business, understand the philosophy of the business, than start gathering information that would eventually lead to a completed project of ideas on how to solve the problem. Out of this collaboration a partnership evolved between the college and the community known as the 'Education by Design' leadership community. This group, spearheaded by Rick Gordon, has developed the only known publication on Problem Based Service Learning. The core elements of this publication are divided into eight sections. I narrowed these eight sections into four essential core elements.

First, the understanding behind Problem Based Learning is essential to building a successful learning community. This strategy relies less on teaching and places the focus on student-centered-learning through collaboration between student and teacher. The end result should reflect an increase in a student's independent thinking process, not afraid to take chances and problem solve for fear of poor grades. The concept behind experiential and problem based learning is to create and to increase the

level of authenticity (real life problems), increase complexity, increase uncertainty, increase command of resources, thereby, increasing a student's level of self direction and self adjustment.

The other key element to understanding experiential learning lies in identifying the two types of learning standards. The first learning standard is essential knowledge, the ability to read, write, and to do basic mathematics. The second element in learning is critical thinking skills, the ability to organize, to calculate, to problem solve, to communicate and to be a leader.

Second, the development of the project for PBSL should include thoughtful planning and presentation. There are a number of questions that one should pursue prior to deciding and implementing a PBSL project. Planning should include identifying the course in which you will develop a PBSL project, identifying a need in the community, defining learning objectives that will be met in meeting the identified need, and in the end, developing collaboration between the community (agency) contacts, school administration, and the educator which promotes strategies, new ideas, and fosters an increased commitment to challenging the students' problem solving abilities.

Third, once the course and the agency is selected, it is essential that the knowledge and understanding by the student be clearly targeted. This refers back to the standards of learning and describes why the work is worth doing. It is at this stage that the educator should complete a worksheet outline that identifies the following:

1. The curriculum, current area of study.
2. Targeted knowledge which may include reference to the program's, the department's and the school's philosophy and mission statements.
3. Identify previous activities or projects used in teaching that may transfer to this new method of teaching.
4. Identify the problem to be solved. Using a familiar activity, utilize problem solving strategies to increase the student's effectiveness in using problem solving with the larger Problem Based Learning project.
5. Have an end product, a concrete exhibition of the student's learning (eg: a poster presentation of the progression and the end result of the project.)
6. Identify the real world in the concrete exhibition. What is real about this end product?

7. Identify the time element involved in the project. How much time does the educator want the student to put forth in this project?
8. Identify how students will collaborate. What number of students per group? How will groups be used? How will groups be chosen?

The fourth and last element is the reflective stage. This element is key to the continuation of the project and for future projects. Also referred to as the feedback stage, there are several necessary elements that should be included here for final presentation to students. There should be a reflective checklist that includes all the aforementioned steps. This checklist should incorporate the educator's own goals and expectations for the project. There should also be surveys both pre and post as to the extent of each student's understanding of the project. This information is invaluable as to the level of awareness of the project that each student carries into their project. Finally, the project should include a reflective survey for the agency to comment about the effectiveness of the project from their view and for the students reflective comment on the agency.

The beauty to using PBSL may actually lie in the use of the many creative tools that a student can choose from throughout the process. As I mentioned earlier, the steps used in the Claremont Learning Process were similiar to the rating system developed by Jill Reilly for her mentoring program. PBSL offers a similar guide but not as a rating system, rather as a way to tract one's thinking process and progress. The tools used in PBSL include problem solving maps, concept maps and a prototype mapping system for ideas and procedures.

In conclusion, PBSL is such a new concept that many educators may feel uneasy about considering the use of PBSL in their curriculum. But if the pioneer spirit is alive and well in an educator then I would suggest the following. Developing the project for PBSL should include thoughtful planning and presentation. There are a number of questions that one should pursue prior to deciding and implementing a PBSL project. The first stage in planning for PBSL should include the following.

- Identifying the course in which you will develop a PBSL project.
- Identifying a need in the community.
- Defining learning objectives that will be met in meeting the identified need.
- Developing an 'open dialogue' between the community (agency) contacts, the college's administration and yourself as you advo-

cate strategies, new ideas, and foster an increased commitment to challenging the students' problem solving abilities.

Once the course and the agency is selected, it is essential that the knowledge and understanding to be learned in PBSL by the student be clearly targeted. This refers back to the standards of learning and describes why the work is worth doing. It is at this stage that the educator should complete a worksheet outline that identifies the following:

1. The curriculum, current area of study.
2. Targeted knowledge which may include reference to the philosophy and mission statements of the programs, the departments and the schools.
3. Identify previous activities or projects used in teaching that may transfer to this new method of teaching.
4. Identify how students will collaborate. What number of students per group? How will groups be used? How will groups be chosen?
5. Identify the time element involved in the project. How much time does the educator want the student to put forth in this project?
6. Identify the problem to be solved. Using a familiar activity, practice utilizing problem solving strategies to increase the students' effectiveness in using problem solving with the larger Problem Based Service Learning project.
7. Have an end product, a concrete exhibition of the students' learning (eg: a poster presentation of the progression and the end result of the project.)
8. Identify the real world in the concrete exhibition. What is real about this end product? What lessons have been learned from participation in this project?
9. Identify the evaluation system that will be used in grading the projects.

Hopefully this information will be beneficial to you if you decide to pursue PBSL. And in case you are wondering, yes, I have used PBSL in the curriculum for two years. The results are mixed, but the current class seems much more receptive to the concept then the first class.

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TOWARD A BETTER SOCIETY (through the eyes of my students)

Denise S. St.Cyr

Problems of society both real and perceived are often targets of criticism and controversy among students. These issues become magnets for curious learners.

Curious students, many subjects, much intrigue...these words candidly describe teaching and learning experiences reciprocally shared by my students and me. In sociology, we learn about what was, we examine what is and we speculate about what might possibly be.

Because we live in a world that venerates improvement (self, home, etc.), the "what might possibly be" translates into the development of a better society proposal, a semester-long activity in which student groups "create" a better society. Students are dissuaded from devising a eupsychean (ideal) society. This would run counter to the human element of sociology. (Levity is of course welcomed.)

Students use the following points as a springboard to develop their proposals:

- family
- education
- religion
- work and money
- crime
- politics and government

Groups struggle to develop a chronology of these focal areas. Yet, the primacy of the family unit continues to prevail as the top contender. Following is one student's perspective of family in response to the "guide" question: For whom does the family function?

"With God as the foundation, it is the family that creates the necessary core for humans around the world to survive. We have different cultures, religions, societies, and beliefs, but the theme of family is threaded throughout the world."

The student further amplifies this answer by adding: "I feel the family's function is to love, share, teach, and work for and with other members in the family. I realize we have dysfunctional families, homeless people, orphans, single parents, etc. That doesn't change the impor-

tance of the role of family. In fact, it enhances it because we, as families, must reach out and touch others who are alone or hurting, thus expanding the role of family even more. Families have the wisdom of generations to guide them on the right path. Strong family ties lead to strong community ties that just keep growing. Families function for the survival of all mankind."

Education – Students "elected" the following facilitators to help them navigate the seas of education:

Peter Jennings: current affairs
Bill Gates: computers
Albert Einstein: math and physics
Steven King: composition and writing
Christopher Columbus: geography
Bill Ny: science
Bill Clinton: sex education
Mario Andretti: automotives
Bo Jackson: physical education
Shania Twain: music
Tara Lipinsky: skating
Greg Louganos: swimming and diving

(Students hastened to add that general studies were critical and that the curriculum is adaptable to students' interests.)

Other critical areas of sociology are subsequently addressed by section. They do not follow any particular chronology.

Religion – The subject of religion always fires up passionate arguments and debates. Students question the existence of God and gods. One group earnestly explored its own self-designed syllogism: If not God, Jehova, Yaweh, Allah, Jesus, Christ, then who or what? Many students remark that whatever religion is analyzed, people most often will seek a higher power in times of crisis and desperation. One student commented: "When I was seriously ill, in deep pain and on my back, I got on me knees to pray." Another student mused: "What a clever fellow God is. How quick we are to ask for help, how slow we are to give thanks."

Work and Money – All groups readily agreed that in most circumstances money is the by-product of work. From that premise is spawned healthy discussions about the world of work and work ethics.

Crime and Deviance – The subject of crime always generates much discussion, yet there never seems to be a wedding of the minds when it comes to possible solutions to deter it. All are gravely concerned about what they term the erosion of morals and values and each person yearns to leave the world a better place. Erik Erikson would have been impressed.

Politics and Government – Politics and government are never agreed upon and are always argued. According to students, the foundation of this section is that for any positive change to take place, each and every person must want to be a part of the solution. Some students have discussed forming a new political party. They explored various platforms that revealed an impending and compelling need to address current and "old" issues. The more things change, the more they remain the same.

Robert Frost once said: "I have miles to go before I sleep." Students who study sociology go the distance when they explore the foundations of sociology and its social institutions. They travel far in their work on this project. They share their visions of a better society. Through group process, they grow as a result. Their next step is to take action...a Herculean effort.

THE ADJUNCT PROFESSOR IS AN ACADEMIC CITIZEN

Mary N. Boyle

Adjunct professors play an important role in the learning community. Two year colleges have a higher percentage of faculty working part-time as compared to full-time even when the many and various definitions of adjunct or part-time professors are considered. An adjunct professor is considered by most colleges to be a faculty member who works less than full time. However, a faculty member is a member of the professoriate regardless of how many hours this individual works. As it is with full-time faculty, involvement of adjunct faculty in the academic community is imperative. What is of significance is how this member is included by the institution of higher learning and how this member accepts commitment to the institution.

College is not a corporation. It is an institution of learning. Students and faculty are being squeezed tight with the students paying the increasing tuition while the faculty is working harder and longer hours for low pay. It is the faculty and the students who are really paying the bill for colleges while business-minded administrators are relying on the false hopes of the so-called market-driven economy. Adjunct faculty are not the cause of this economic problem. They can be used as a solution by really including them into the academic community. When the college accepts a tripartite governing structure that includes the board of trustees, the administration, and the faculty, these parties have responsibilities to each other to uphold the fundamental principles of higher education. When decisions of the administration are "based primarily on considerations of cost and not educational need or desirability" (American Federation of Teachers) then these fundamental principles are sacrificed. It is necessary for the public good to uphold the traditions of higher education which depends upon the integration of faculty engagement in the decisions affecting student learning. The American Association of University Professors clearly states the purpose of the learning institution is: "A. To promote inquiry and advance the sum of human knowledge. B. To provide general instruction to the students. C. To develop experts for various branches of public service." (AAUP, 1915) "The discovery and transmission of truth is the distinctive task of the academic profession...."

(Shils) Together, part-time and full-time faculty can reclaim their role as advisors to the administration, board of trustees, and state legislators in this arena called Education.

The mission of most community colleges is practical knowledge for their students. Adjuncts provide a bridge between the community and the college as many of these professors work outside the academic world as well. They provide an opportunity to enhance that "market-driven" program that the college supports. They also provide a workforce that fills an economic necessity. This is occurring at colleges nationwide. The adjunct professor is hired on a contract to contract basis each semester at most institutions. Many times the adjunct is notified just a few weeks and even a few days before classes begin. If it is determined the adjunct is not needed, then the contract is not signed and notice is just as hasty. So why does the adjunct professor accept these conditions? *The faculty member looks at his profession as a calling.* This is not just employment. It is the privileges and duties of academic citizenship in higher education that is the focus for this part-timer. The "conception of a university as an ordinary business venture, and of academic teaching as a purely private employment, manifests also a radical failing to apprehend the nature of the social function discharged by the professional scholar" (AAUP, 1915); "and all too frequently, both in state and endowed institutions, they fail to treat the members of the teaching staff with that high consideration to which their function entitle them." (Elliot) One study of similarities and differences between full-time and part-time faculty (Rifkin) looked at five attitudinal markers believed to be representative of a professional: knowledge acquisition, service ethic, autonomy, commitment to a calling, and integrity. The response showed that adjunct faculty did view their role as being academic professionals but they were not actively invited to be part of this professional community.

The part-time worker is being used in businesses everywhere. The perceived view of the booming economy looks at low unemployment as a measure of success. It is overlooking the increase of under-employed workers who are accepting part-time positions. Part-timers are not eligible for many of the benefits that full-time employees have. These businesses enjoy the benefits of the cheap labor while the employees are vulnerable to unfair labor practices. "This is about a massive secondary labor market that has been created in every occupational group...." (Cook) The contingent employee accepts less than equitable conditions

and in some businesses is compensated for this by a slight increase in the hourly wage. For example, a *per diem* employee in a hospital laboratory working as a medical technologist is compensated for lack of benefits by an increase in hourly wage and is given the respect and the rights that go along with that profession to make decisions with regard to expertise. If a decision made by management is disputed, the medical technologist can freely advise with suggestions on how to improve situations. At many colleges this may not be the case for adjunct faculty with regard to pay or respect.

Academic citizenship has rights and corresponding responsibilities. The biggest problem with writing this paper about adjunct faculty as academic citizens is that they are not treated as faculty members by the administration at many institutions of higher learning. The board of trustees are unaware of the climate in which these adjuncts are working. One way that adjunct faculty can be included is for full-time faculty to encourage the adjunct professor to become involved in the full scope of the learning community by: attending department meetings, faculty forum, all campus forum; becoming a member of an orientation committee for faculty and staff to represent adjunct faculty needs; seeking advice from colleagues and lending comments to colleagues; becoming a member of other committees that may arise such as a self study for Higher Education accreditation; reviewing a textbook soon to be published; having access to professional development funds, and actively participating in faculty evaluation committees. Adjunct professors may request that their teaching be formally evaluated and provide their students with evaluation forms to be handed directly to the department chair. Another way to foster involvement of the adjunct is to have the department chair mentor closely and encourage full participation as an academic citizen. The problem with the over-use of part-time faculty is not full-time professors' resentment that these part-timers are there, but it is lack of engagement of all faculty by the administration.

It is the failure of the administration to willingly integrate adjunct professors as faculty members that interferes with adjunct involvement in the academy. The leadership of these people affects adjuncts and clearly reflects the administrators' lack of communication with the full-time faculty as well. "The development of American higher education has always included a struggle for a significant role in governance...I cannot believe that the solution to our present problems is to turn our

backs on such an ideal of community. That's why I worry so much about recent attacks on faculty governance...Most significantly, I see our institutions, especially at the department and program levels, advising new faculty to eschew academic citizenship rather than to take hold of it from the beginning." (Burgan)

Consider a case at a community technical college where a lot of grumbling amongst the faculty was heard by an adjunct member. They were highly concerned about some of the decisions made by the administration. It appeared that there was fear to speak up about the unresponsive administration. These faculty members were asking to be involved in activities appropriate for their role, namely to give input to the administration and to have the administration be responsive; privileges as academic citizens were being denied. "He is entitled to express his doubts about the supposed new evidence, to express his own conviction that a still-tentative hypothesis will turn out to be true. Inevitably, he will sometimes be wrong on both these points. All that is demanded from him is honesty and modesty about what is and what is not, at a given time seriously controversial, and about what is simply not known." (Shils) The faculty felt that they had no voice. Faculty governance and communication were the real issues because the responsibilities of faculty such as scheduling and curriculum design were being taken over by the administration without faculty input. An adjunct professor decided to put a foot forward and began to speak up.

This case represents a frustrated search for academic citizenship in this learning institution. First there was a letter by the president of the college labelling the adjunct actions unprofessional and insubordinate and affirming that adjunct faculty do not share the same rights that full time faculty do.

The next course of action took place a few weeks before the beginning of the following Spring semester when the adjunct received a phone call from the vice president saying that they decided not to hire the adjunct for the Spring semester and that they thought it would be better if the adjunct took a break. An adjunct professor with a good teaching reputation was not being rehired. This decision was against the recommendations of the chairs of two departments. The message the administrative decision presented to the entire college was that adjuncts have no rights and are not considered as faculty members. The administration unilaterally stood of the mind that the matter was about being un-

professional and this was not an academic issue involving the department chairs. Needless to say, the department chairs were upset by this. The administration had decided to ignore the previously recognized role of the department chair to recommend faculty. The assistant vice president hired an unqualified instructor for one of the courses and one of the department chairs took over the other course.

What does this say for academic citizenship? A college is supposed to be a learning community. Does it make sense to hire someone entirely new to a course that another willing instructor has successfully taught for the last five years? Is it fair to the new hire and does it forsake the needs of the students? This was not an emergency situation in which there was no other alternative. *This was a statement by the administration that it will not tolerate a difference of professional opinion.* Does it make sense to wield power for the sake of wielding power and to forsake the needs of the students? Is it not true that the this entire learning community is supposed to take the students' best interest to heart? Truly, academic citizenship does not always occur, as in this case, but the professoriate should embrace these vital principles.

Every faculty member has responsibilities to the students, to the faculty, to the college, to the community, and ultimately to society. The approach on all accounts should be administered ethically. The responsibility to the student is the transmission of knowledge: "The only immediate guarantee of the university teacher's observance of his obligation to students to teach what is true and important to his students is the seriousness with which he takes his calling, his belief in the value of the knowledge he teaches and his conviction that the truth about his subject matter is eminently worth knowing or propagating." (Shils) The responsibility of the professor to the other faculty members includes those members within the department, within the college, and colleagues in colleges and universities in the country and abroad. Opportunities to meet and discuss issues in teaching and the college must be sought with strict conviction and conscience. At the college level, responsibilities are met by participation in advisory committee work that affects the standing of the institution as a whole, that are espoused in the academic ethic. The responsibilities to the community are met by participation in local government, civic duties, schools, and as parents.

An equally important consideration is the responsibility of the institution to the faculty member. The responsibilities should be administered

ethically: to be fair, to be honest, to keep promises, to show respect, and to encourage these members to face and overcome difficulties. Its obligations are to encourage participation in the academic community. All three governing bodies: the board of trustees, the administration, and the full-time faculty must assure that the long term integration of part-time faculty is taken seriously in order to establish a climate that encourages quality higher education. Students deserve this and the faculty, *all* faculty, can take part in this with pride. "It shows how institutions can become stronger and more effective because they integrate part-time faculty in the core activities of teaching and learning." (Gappa) It is imperative to provide the adjunct professor with assistance and support in their development and performance in the role as an academic citizen. They must not be regarded simply as supplemental to full-time faculty. They must be included and trusted as an integral part of the teaching body.

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A PROCESS TEMPLATE FOR DESIGNING A COURSE

Paul Marashio

Designing a course, any course, one should tear away the multiple layers of the discipline to the discipline's framework. To achieve this task one must ask the core question, how does a Professional go about his/her work? or What is the process used to construct a text? You too could do this with your course.

For me the answer to this core question is clearly outlined in the ethnohistorian process (a combination of two academic processes, history and anthropology). This process functions as a road map directing the ethnohistorian on an adventurous journey from the secure comforts of home into an unfamiliar territory, leading to the discovery of new insights, ideas while on a quest for truth.

THE PROCESS AS GUIDE

Why not turn students into ethnohistorians? Utilizing this same process in designing a course will give the students power to breathe life and meaning into the listless facts. Facts are the grist whereby students discover hypotheses and interpretations and like the professional ethnohistorian writes a historical narrative and shares the findings with peers.

Two ancient pedagogues, Socrates/Plato, accurately philosophized that contained within the soul of each human being is the ability to be both teacher and learner. It is my full acceptance of this philosophical view that led me to title the process model "The Teaching/Learning Process Model." Such a process model assists students to fulfill this philosophical premise but in addition realize Plato's other pedagogical ideal of becoming lifelong learners.

By implementing such a process model students sharpen their critical thinking, problem solving, reading and writing skills. What springs from such an approach to course design is a holistic approach to learning that takes students into unexplored frontiers where they can make the unknown, known and turn learning into a quest for a truth.

On the first day of class, I introduce and orient the students to the "Teaching/Learning Process Model."

THE LEARNING/TEACHING PROCESS MODEL

Step 1: Statement of the Problem
Step 2: Study and Preparation: Review of the Evidence
Step 3: Collection of Evidence
- List the evidence
- Evaluate the evidence
- Select, arrange, and categorize the evidence

Optional: retrace your steps
Step 4: Internalization of the evidence
- Gather insights
- Make connections
- Make inferences
- Construct and reconstruct the evidence

Step 5: Incubation of the Evidence
Optional: retrace your steps
Step 6 Formulation of the Thesis and generalization
- Explaining the supporting the thesis and generalization
- Verifying the thesis/generalization

Step 7: "Ah ha"
Step 8: Sharing the Insights

This Teaching/Learning Process Model acts as a road map for the students. Oftentimes one's departure is initiated by a problem, crisis, controversial question/issue calling out for a resolution or an answer. In order for the ethnohistorian to reach the destination, a review and a study of primary and secondary sources is essential. These two different types of sources are the repository containing the necessary evidence the ethnohistorian needs to make inferences and eventually formulate interpretations. As they work through steps 1, 2, 3 of the process model, collecting evidence for the stated problems, they should refer to step 4, internalizing the evidence for patterns, themes, commonalties that make themselves apparent through the evidence. Then they can begin making guesses/inferences. Meanwhile, I encourage the students to begin writing with steps 1 through 4 in the forefront. In this way the students become better acquainted with the evidence, eventually leading to a better understanding of the subject. The writing moves the students into step 5, incubation of the evidence. This affords the students the necessary thinking time to sort through the evidence and the guesses/inferences. In addition, the writing reminds the students of what they have

learned and how much more they still need to learn before they can proceed on to the last step, formulation of the theses and interpretations. When they complete this step the students have a rough draft (a work in progress) which is the basis for succeeding drafts for their ethnohistorical narrative. Thus these explorers venturing into unknown lands deciphered the road map and successfully reached their destination.

Following the orientation of the Teaching/Learning Process Model, I introduce the students to the simulation "Ethnohistorian: Understanding Native People" that transforms the students into ethnohistorians for the duration of the course. Reading the simulation's introduction the students learn what an ethnohistorian is and how the ethnohistorian works. As the students continue reading and I explain how the simulation works they become aware of the interdisciplinary nature of the ethnohistorian's work.

Simulation Handout:

ETHNOHISTORIAN: UNDERSTANDING NATIVE PEOPLE

Competencies

- give a factual, descriptive cultural account
- hypothesize on the cultures of Native People
- recognize stereotypes in contemporary portrayals of Native People
- discuss how Native People were different from each other and similar to each other
- learn that change is a constant and adaptation is accomplished with deliberation and foresight
- realize the value of primary resources in ethnohistorical research

Introduction

We are going to explore Native American cultures and write an ethnohistorical account of these diverse cultures. You are an Ethnohistorian, a historian and an anthropologist, working with a team of Ethnohistorians who are reconstructing the history and culture of Native People by collecting data from myths, songs, beliefs, history, and artifacts. Once you've gathered the data you are ready to formulate your hypotheses.

The study and interpretation of Native People's cultures requires much money, labor, and cooperation. Most Ethnohistorians lack the funds to visit informants and evaluate a culture as thoroughly as they

would like. As a result, Ethnohistorians must spend their money wisely. They cannot explore willy-nilly, hoping to bump into informants and artifacts by chance.

You will earn money to finance your research by taking a quiz on "Locating Native Cultures". The average score for each team will be multiplied by $1,000. For example, if your team averages 30 points, your team will receive $30,000 with which to conduct its research. $10,000 can be earned from the "Count Coup" game. However, since it costs approximately $45,000 to research the diverse cultures, your team must work cooperatively to make sure that you spend your money wisely.

Informants: Each team will be given a listing of informants (textbook) to begin your research.

Independent research: You may use the library, resources at home, or outside experts. Cost $0.00. (Note: these sources may not be reliable)

Inventory: These are invaluable tools, i.e. artifacts, human values and symbols charts, Native American games, and photographs of Native People. These additional resources cost $1,300 per inventory item. (Note: there are 8 artifacts and 17 inventory items)

Lab Reports: You may consult with and send artifacts to specialists (your instructor) for research and lab reports. These experts may be able to identify the artifact with great precision. Consultation costs $1,000/consultation.

At the conclusion of the stimulation, each person must submit a written report of the findings and participate in a "round table" presentation of the team's conclusions. The report must attempt to answer the following questions, and it must provide a detailed explanation for each question by referring to data collected during the simulation.

To collect data for your account on Native People use the following questions:

- What is the nature of Native People's relationship to the physical world - does it emphasize mastery over harmony, or subjugation to the environment?
- What is the nature of activity - is it becoming (spiritual), or doing?
- What is the nature of human relationships - are they hierarchical, collective, or individualistic?
- What is human nature - is it good, bad, neutral?
- How do you feel about Native People's life and culture?

- Compare and contrast Native People's life with contemporary American life.

Writing Your Ethnohistory

Using the Teaching/Learning process Model as your guide-

From the evidence gathered what patterns, themes, commonalties do you see?

What guesses can you make about Native People's cultures and histories? What was important to them?

Allow all of the above to settle in by allowing time for incubation. As you feel more comfortable, begin to formulate theses or interpretations.

Once you have done that you are ready to write. Begin your ethnohistorical narrative with an, "I learned ...." statement.

This will help you to write a rough draft (work in progress) that becomes a starting point for your following set of drafts that leads you to the ethnohistorical narrative you will present for peer review.

The Competitive Round Table

Tasks: collect data, use data properly in a paper, have fun.

Competitive: accurately reference and support your theses.

Evaluation: research-writing team with the most points win.

First place	= 6 points
Second place	= 4 points
Third place	= 2 points
Two-way tie for first place	= 5 points each
Three-way tie for first place	= 4 points each
Two-way tie for second place	= 3 points each

	6	4	2
Research			
Oral Presentation			
Cross Examination			
Written Presentation			

Presentations

Each Ethnohistorian Team will give a formal, oral presentation of their research to the members of the NHCTC Ethnohistorical Society.

Format

Ethnohistorian Team 1

Presenter 1

Presenter 2

Presenter 3

Cross Examination during the presentations, the members of the other Ethnohistorian Teams should take notes to be used in the Cross Examination. The purpose of the Cross Examination is to clarify parts misunderstood and to illustrate weak parts of the Ethnohistorian Team's presentation.

Following the Cross Examination

Ethnohistorian Team 2, following the presentation format, presents its research followed by Ethnohistorian Team 3.

Debriefing

- Why do you think there are so many different Native cultures?
- Why do you think Native People had different values than most Americans have today?
- How does a person's beliefs (values) affect how he/she behaves?
- Which values - Native People or Contemporary American do you think are better? Why?
- Do you believe that this simulation has provided you with a better understanding of the Native People? Why or why not?
- Before an instructor uses this simulation again, what changes would you recommend?

Inventory

1 Human Values Chart

1 Symbols: The Plains and The Lakes

1 Symbols: Mountain and Mesa

1 Symbols Commonly Used on Kachinas

1 Sand Painting Legend

1 Symbols Used Principally on Totem Poles

6 Native American Games

5 Photographs of Nineteenth Century Native People

SEMINAR OPERATIONS

Sharing Sessions

Each seminar begins with a sharing session where the student ethnohistorians have an opportunity to share with each other their most recent findings. These sharing sessions unite the students into a fledging academic community where content and perceptions are exchanged. As the instructor, my job is to facilitate these sharing sessions. In addition, when necessary, I provide a context for the discussion by offering information unavailable to the students in their reading assignments. These contextual moments offer the students essential background information on the varied histories, cultures, politics, and the economies of the Native People with the purpose of expanding the students' learning so they might see the readings with more of an acute clarity of context.

Breakout Sessions

Following the Sharing Session comes the Breakout Sessions where the ethnohistorians, working in teams, continue their research, discuss the research with each other and begin writing drafts of their ethnohistory.

I encourage students to begin writing their ethnohistory early on in the course while they continue gathering evidence. If the students follow this advice it will bring the students closer to the research, making the large body of evidence more manageable, and the student ethnohistorians through their writing will see even more clearly, and discover new insights.

Following the writing of the ethnohistory, the ethnohistorians orally present their findings to their student ethnohistorian society for peer review. This brings a nervous edge into the simulation, but a most valuable learning experience for the student ethnohistorians. Peer review when done well, that is everyone understands the purpose of the peer review and the peer review guidelines are clearly articulated by the instructor for the students, can be a wonderful morale booster for these budding ethnohistorians.

DESIGNING THE LESSON PLAN

The following series of lesson outlines for the semester provide the daily structure of the various seminar assignments by topic, time frame, and instructional procedures. I thought this lesson design would be helpful to an instructor who is struggling to visualize the daily lesson format of this style course design.

LESSON DESIGN

Lesson A:

Topic: Culture Areas: Where Native People Live
Cultural Diversity: Overview of Native People's Cultures
Time: 3 class sessions
Procedure: Q&A; Cultural Simulation

Lesson B:

Topic: Origin Stories
Time: 3 class sessions
Procedure: Sharing Session; Team Collaboration

Lesson C:

Topic: Stories of Long Ago
Time: 3 class sessions
Procedure: Sharing Session; Team Collaboration

Lesson D:

Topic: Culture Heroes
Ritual and Religious Stories
Time: 3 Class sessions
Procedure: Sharing Session; Team Collaboration

Guideline and Discussion Questions:

- What themes are apparent in the reading?
- What patterns emerge from the Native Sources?
- What cultural differences emerge from the sources?
- What do the different Native Cultures hold in common?
- Describe the relationship of the people to the environment and the universe?
- How do people get along with each other within a cultural setting?
- From these sources list the values of Native People.
- Discuss the economies of Native Cultures?
- What is the purpose of religion?
- Describer the various ways of worship of Native People?
- What is the significance of religion for Native People?
- How important is religion to the Native People?

Lesson E:

Topic: Songs – Music, Artifacts, Art
Time: 3 class sessions
Procedure: Hands-on Analysis of songs-music, artifacts, and art

Analytical Discussion Questions:

- What is the function of songs-music in Native People's daily life?
- What do they sing about?
- List several things the songs say that you think are important.
- List the material the artifacts and art works are made of (bone, pottery, metal, wood, stone, leather, glass, paper, cardboard, cotton, other material.)
- What might these works be used for?
- What do we learn about Native People's technology?
- What might these items tell us about the people who made them?
- Discuss and identify the symbols on the various artifacts and art pieces.

Lesson F:

Film: "Smoke Signals"
Time: 3 class sessions
Procedure: Viewing and Sharing Sessions

Film Analysis and Discussion Questions:

- What is the major theme of the film?
- Discuss the plot, the tone, and the major character.
- List several things the film tells you about life in a contemporary Native Culture.
- What did you learn about modern day life on a Rez?
- Identify the filmmaker's point of view.
- How effective was the filmmaker in transmitting the message?

SEARCHING FOR A FRAMEWORK

When designing or even redesigning your course(s), consider searching for the framework telling you how your discipline's scholars work. By uncovering the discipline's process and applying the process to your course design, your students will work and think like the professionals you are teaching them to become. They will transform content/data/evidence into meaningful analyses, generalizations, interpretations, theses etc. As ethnohistorians, through "The Teaching/Learning Process Model," students truly come to know how to learn. They learn where to go to find evidence. They learn that evidence when viewed as a whole contains learnings to be discovered through inquiry. From this body of evidence flows patterns, themes, generalizations, interpretations. These

students experience illumination - a coming to knowledge. Finally, they write an ethnohistorical text. The process model is a key that unlocks a chest crammed with important materials when upon closer examination leads one to uncovering a truth. A truth that opens the mind's eye to see more clearly.

HEURISTIC RESEARCH

Nancy Roy

Research can be much more than graphs and statistics. Research came *alive* for me as I participated in various seminars and courses during my doctoral program at The Union Institute. Perhaps we can expose our students to some of these forms, so that they too can experience the electrifying excitement of the felt experience as a researcher. The following is an excerpt from the methods and design chapter of my qualitative research project using poetic metaphors and a feminist approach to weave together intricate questions and ponderings about the creative process. *Perceptions of Being Creative: A Heuristic Study of Women Without Children* is a quest to understand the complexity of the creative process through the thoughts and comments of eleven women. The heuristic model outlined by Moustakas (*Heuristic Research: Design, Methodology, and Applications*, 1990) serves as a backdrop and comparison with the steps of the creative process.

The methods and design chapter was named *Tools for Harvesting* because as a researcher, I needed to decide which tools I would use to unearth responses...How would I harvest all the seeds I had been sowing? What tools would I use to pursue the topic of creativity in women without children? How would I engage in my inquiry? In this section, I will elaborate on the methods I used in this investigation into the creative process. I will share some of the reasons I felt that a qualitative study, and in particular heuristic research, was the most appropriate for me, the topic, and in keeping with a feminist research perspective.

Perhaps I too readily connected with Rachel Naomi Remen's essay, *On Naming and Awe*, in her book *Kitchen Table Wisdom* (1996).

> A label is a mask life wears. Labeling sets up an expectation of life that is often so compelling we can no longer see things as they really are. This expectation often gives us a false sense of familiarity toward something that is really new and unprecedented. We are in relationship with our expectations and not with life itself....Belief traps or frees us. Labels may become self-fulfilling prophecies. (p. 66)

Might you have an expectation about the interviewee if you knew she was a nurse? Or a lesbian? Or a born-again Christian? Admittedly I, too, struggle with preconceived notions about people, and for this Project I didn't want to get sidetracked. Perhaps because the nature of this Project,

creative perceptions, is so fluid and open-ended, I felt that I simply wanted to honor the flow and not put any of these women in categories. In addition, in the questionnaire I sent to them, I did not ask for any information related to their age, educational background, race, class, etc. I must agree with Margery Wolf in her essay in *Feminist Dilemmas in Fieldwork* (1996) that I, too, *don't think I would be alone in insisting that the color of my skin and my ethnicity do not determine my ability to understand knowledge acquired through another person's experience* (p. 221). This chapter will focus on the methods used to understand the creative spirit, as defined for this exploration.

Michael Patton's book *Qualitative Evaluation and Research Methods* (1980) offers numerous reasons why the qualitative approach would be most fitting for this Project.

> ...selected issues [may be studied] in depth and detail. Approaching fieldwork without being constrained by predetermined categories of analysis [as in quantitative research] contributes to the depth, openness, and detail of qualitative inquiry. Qualitative methods typically produce a wealth of detailed information about smaller numbers of people and cases, increasing understanding of the cases and situations studied but reducing generalizability [as in quantitative research]. (p. 13-14)

Patton also specifically states the appropriateness of the use of qualitative research methods for the study of creativity. *Another reason for using qualitative methods is that for particular outcomes no acceptable, valid, and reliable quantitative measures exist, or at least are open to question (p. 130). Creativity is a prime example* he further states.

Also, in keeping with the feminine approach, *feminists use a variety of qualitative styles, but share the assumptions held generally by qualitative or interpretative researchers that interpretive human actions... can be the the focus of research* (Olesen, 1994, p. 158). Multidisciplinarity, connection, conversation, reflective researcher, and empowerment of women as co-researchers are all concerns of the feminist researcher, as well as important areas of consideration for this Project. *Multiple approaches via qualitative research are [what] is required* (p. 169); so says Olesen in her essay *Feminisms and Models of Qualitative Research.*

This project and its creator have focused on a creative, collage-like approach to research. Color, texture, smell, nuances of light and sound,

and many other seemingly insignificant and infinitesimal perceptions have been woven into the texture of this tapestry. Flowers and vegetables have been planted side by side, tilled with sometimes unrecognizable tools. Denzin and Lincoln (1994) helped me give a name to this multi-varied qualitative research tapestry... bricolage. *The product of the bricoleur's labor is a bricolage, a complex, dense, reflexive, collagelike creation that represents the researcher's images, understandings, and interpretations of the world or phenomenon under analysis... stressing meaningful relationships that operate [within] the situations studied* (p. 3).

I have taken the role of bricoleur literally, as well as figuratively. From the beginning, this bricoleur has intended to be conscious and aware in the details of the moment, as well as within the larger context of the exploration. Appendix I is a photograph of the postcards and letters that went out to participants of this Project. Appendix II also reflects an image of gentleness and spirit as correspondence was always on lavender paper. Initial stamps were flowers until the breast cancer stamp was released. What may seem like a small detail was important to this bricoleur as I wanted to convey a genuinely, caring spirit, eager and receptive to listening in a meaningful way to a heartfelt conversation. These women followed through with their own special "flavor" and style and some of that is reflected in the presentation of their interviews. I set the stage with heartfelt intention as I sent out invitations to participate in this journey. I wanted them to know and understand, and feel, that this interview would be honored and respected.

This preoccupation with the felt experience is another feminist researcher attribute, and I make no apology for my concern for the invisible forces within the feminine creative spirit. These forces cannot always be specifically delineated or even identified; however they are alive and well and can be expressed in a myriad of ways. Two of these very powerful forces of expression, metaphor and poetry, have already appeared in this project. The succinct words of a poem, or the image created by a metaphorical analysis can often evoke feelings, images and thoughts that a narrative form does not capture.

Janesick's article *The Dance of Qualitative Research Design* (1994, p. 209 - 219) was one of many which helped me to understand why poetry and metaphor were such powerful forces during this process. *Metaphor in general creeps up on you and surprises. It defies the boilerplate approach to a topic [and its] precision is the central vehicle for reveal-*

ing... qualitative aspects of life. (Janesick, p. 209) Janesick's article also connected me to an earlier experience with dance and movement. The author contends that *dance is an interpretive art form, and [she] sees qualitative research design as interpretative as well* (p. 210). Again and again, a seemingly inconsequential whisper of a thought, or word reminiscent of a past reading would reconnect me to another time and place, and revive a previously dormant thought pattern . My awareness level has increased a thousandfold since beginning the doctoral journey, and this research process. I believe these experiences, the readings, and the conversations—all of it—have added much meaning to my life. Undoubtedly my awareness has been heightened throughout the project, and synchronicity has prevailed.

Because of these powerful connections, heuristic research as a type of qualitative research seemed appropriate to further narrow how I would approach this exploration. What is heuristic research? In his book, *Heuristic Research: Design, Methodology, and Applications* (1990), Clark Moustakas, a well known proponent of heuristic research, offers the following definition:

> The root meaning of *heuristic* comes from the Greek word *heuriskein*, meaning to discover or to find. It refers to a process of internal search through which one discovers the nature and meaning of experience and develops methods and procedures for further investigation and analysis. The self of the researcher is present throughout the process and, while understanding the phenomenon with increasing depth, the researcher also experiences growing self-awareness and self-knowledge. Heuristic processes incorporate creative self-processes and self-discoveries. (p. 9)

Heuristic research involves self-searching, self-dialogue, and self-discovery and evolves from an inner awareness and meaning-seeking on the part of the researcher. Moustakas writes about swimming into an "unknown current" where the dawning of awareness may be refreshing and peaceful, or disturbing and even jarring.

Although Moustakas acknowledges that the heuristic process is autobiographic, he also realizes other relevance... *with virtually every question that matters there is also a social—and perhaps universal—significance* (1990, p.15).

The six phases of heuristic research, as defined by Moustakas, include: *the initial engagement, immersion into the topic and question, incuba-*

tion, illumination, explication, and culmination of the research in a creative synthesis. (1990, p. 27) To me, these phases resembled cycling through the creative process as outlined in numerous creativity books (deBono, 1992; Fritz, 1991; Peterson, 1991). Barry Heermann's Team Spirit™ process, as experienced in my current doctoral internship, was also akin to this heuristic process. Heermann's is a spiral process and the form that this heuristic process has taken throughout this expedition.

The entire process has spiraled 'round and 'round, again and again, stopping and starting constantly. Perhaps because I designed this project to be fluid and alive, the process has often overtaken the bricoleur, threatening to overwhelm and curtail the exploration. The *initial engagement* started at the beginning of the doctoral program, although the immersion into the topic continued throughout the program. *Immersion* has meant dreaming about this project, thinking about this project while I was running, during a work meeting, reading the local newspaper, taking a shower. Total, complete, and thorough, this *immersion* sometimes felt like drowning, but perhaps that was necessary for the process.

Incubation periods always seemed longer than I allowed myself. Moustakas certainly never specifically states how long the *incubation* period needs to be, but I often berated myself for the amount of time I needed to "mull things over" in my head, before there was an insight, an *aha*, an *illumination* in heuristic terms. The *illumination* period was the most enjoyable as once the "light" was on, the outpouring seemed endless and of course was most jubilant.

The purpose of the explication phase is to fully examine what has awakened in consciousness, in order to understand its various layers of meaning, creating an inward space and discovering nuances [and] textures (Moustakas, 1990, p. 31). At times I wondered if I too closely identified with this phase as I was keenly awake and aware, noticing minute details and sometimes losing myself in that *inward space*.

Inevitably something would happen and the details would *culminate in a creative synthesis*, the last of Moustakas's phases. Throughout the journey these phases would repeatedly be cycled through, in and out again. The actual document, the representation of the experience of this bricolage, by me, the bricoleur, will be the final culmination of all the research, interviews, all the work involved. This heuristic process has paralleled my own creative process and added another dimension to my learning.

The title and explanation of this project, *Perceptions of Being Creative: A Heuristic Study of Women Without Children* was shared with the

potential interviewees before they committed to be interviewed. The set of questions focused on the areas that evolved during the doctoral program. *Different dimensions of creativity* set the stage for discussing ways of being and thinking, not restricting creativity to art or music. And because work is a major part of my life, and often an integral part of most women's day, *the expression of creativity* at work also warranted further discussion. Furthermore, what was the *experience of creativity for women without children*? And finally, was there any *connection between creativity and spirituality*?

The invitational letter was initially mailed to nineteen women. The information in the letter only explained the nature of the project and stated the areas highlighted above. These women had heard of my project and had expressed an interest. Currently all of these women live in the New England states. Sixteen women said yes, although, because of scheduling, prior commitments, and other circumstances, the final number interviewed was ten. The following questions were sent to the participants a week prior to the interview:

- *Why do you want to tell your story?* This question was asked to create a link and a connection between the interviewer and the interviewee. Certainly the interviews were by no means the "entire" story, but rather a snippet of multi-faceted, complex lives, with a specific focus on creativity. I wanted to take the time to pause, listen and wonder, and sit at the kitchen table of some ordinary, everyday women and hear their stories (Remen, 1996).
- *Tell me about the ways in which you are creative.* Obviously a question from the main theme of the project, this question was meant to open the doors of an expanded definition of creativity. As stated in the initial letter to these women, I especially wanted to hear about women and their feelings, attitudes, and understanding of their own creative spirit, women who accepted and acknowledged their own creativity. For me, creativity is not restricted to the arts, but rather those who "think" creatively and look at the world with "different" eyes, or a unique and innovative perspective.
- *What symbol would you use to represent you and your creativity?* Another creativity question, and a question created from my interest in the visual form. This question was intended to unearth other forms of creativity that may not have surfaced with

conventional discussion. What type of collage could be created from the replies? What type of bricolage might be created?

- *How have you been able to express your creativity at work? How have your work experiences encouraged, supported, and rewarded your creative expression?* These questions were about the link between creativity and the world of work. More and more women find themselves in the workplace. Some women may still suffer from gender inequity, while others may find prejudice reversing itself against women who are not mothers. Some current organizational development literature suggests a more feminine approach is necessary for successful work of the future. These questions were intended to probe the experiences and articulate any thoughts or concerns.
- *What is it like to be a woman in your world? Do you see any relationship between being creative, being a woman, and being childless? To what degree have you felt recognized and valued for your creativity? How has this impacted the expression of your creativity?* This multi-dimensional question was directly linked to the experience of creativity for women without children. We are about to enter a new century. The women's movement has grown and changed. What is currently happening in the lives of these women who are without children. Is there any recognition for their thoughts and ideas, their way of being? Is recognition even necessary to sustain their creative juices, ideas, and plans? Have they even thought about these questions?
- *Do you think there is any link between creativity and spirituality? Why or why not?* This was a question asked to probe any connection between creativity and spirituality. My studies directly led me into this connection, but did any connection exist for the "ordinary, everyday" woman?
- *How would you like to be defined and described in this research project? A title or name for your story?* This question provoked so much anxiety in the first interview, that the question was not sent prior to the interview for the remaining nine women. This question came from my quandary about labeling and classifying. While I rallied against defining creativity, and resisted a set structure or form to follow, I wondered if other women would welcome an opportunity to define themselves. Sometimes walking through the rows of

a neatly sculptured vegetable garden can be comforting when the outside world is a chaotic, frenzy of indescribable creations.

The questions were meant to provoke thought, and later, discussion. The questions were not intended to invoke precise and exact answers. The questions were intended to inspire more questions and provide a forum for thoughtful reflection and pondering. The questions were the steppingstones into the unknown, and perhaps even into the uncomfortable probings of the inner chambers of the mind. The responses were not meant to offer answers, but rather offer other avenues of ambiguity and consideration.

The interviews generally lasted two hours and generated between six and sixteen typewritten pages of notes. I transcribed all the interviews. Complete transcripts are available for perusal. Although the questions asked were the same, naturally there was some digression within these presented questions. The interviews are presented in the words of each woman, with some editing. Each woman has read her own section. Some related comments about each story can be found in my own section, at the end of the interviews from the ten women.

The project clearly illustrated T.S. Eliot's exclamation in the final stanza of "Little Gidding." *We shall not cease from exploration/ and the end of all our exploring/ will be to arrive where we started/ and know the place for the first time.*

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The complete PDE may be borrowed by contacting Nancy Roy at NHCTC in Claremont or emailing her (nroy@tec.nh.us).

AUTHORS

Mary N. Boyle
Adjunct Professor
NHCTC - Claremont
(603) 542-7744

Larry Carle
Running Start Adjunct Professor
NHCTC - Claremont
(603) 542-7744

Sandra Cole
NHCTC - Claremont
(603) 542-7744
scole@tec.nh.us

Doyle V. Davis
NHCTC - Berlin
(603)752-1113
ddavis@tec.nh.us

Philip Eller
NHCTC - Laconia
(603) 524-3207
peller@tec.nh.us

Sandi Hennig
Student
NHCTC - Claremont

Janice G. Kaliski
NHCTC - Manchester
(603) 668-6706
jkaliski@tec.nh.us

Nancy Marashio
NHCTC - Claremont
(603) 542-7744
nmarashio@tec.nh.us

Paul Marashio
NHCTC - Claremont
(603) 542-7744
pmarashio@tec.nh.us

Joe Perron
NHCTC - Claremont
(603) 542-7744
jperron@tec.nh.us

Nancy Roy
NHCTC - Claremont
(603) 542-7744
nroy@tec.nh.us

Kathy Solomon
Adjunct Professor
NHCTC - Claremont
(603) 542-7744
k_solomon@conknet.com

Denise S. St. Cyr
NHCTC - Manchester
(603) 668-6706
dstcyr@tec.nh.us

Jack Wakelin
NHTI - Concord
(603) 271-7134
jwakelin@tec.nh.us

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